

V D

Industria y Comercio
SUPERINTENDENCIA

12C7

SOLICITUD

PATENTE DE INVENCION

21 EXPEDIENTE Nº

03-22845

64. TÍTULO

VEHICULO MONTABLE PARA NIÑOS

51. CLASIFICACIÓN INTERNACIONAL

A 63 H 12/16

71 SOLICITANTE

MATTTEL, INC.

DOMICILIO

El Segundo, California, Estados Unidos de América.

4. APODERADO

EUGLIO FERRERO

2 BOGOTÁ, D. C.

Oficina No. 1092

18/03/2003



Industria y Comercio

SUPERINTENDENCIA



03 022845 00

PETITORIO

SUPERINDUSTRIA Y COMERCIO

Radicación 03022845 00000000

Folios: 143

Fecha (ADM): 2003-03-18 17 13.09

Trámite 011 PCT-PATENT 379 FASE NACI 411 PRESENTA

acción

Dependencia: 2020 DIVISION DE NUEVAS CREACIONES

FORMULARIO UNICO DE SOLICITUD DE PATENTE
PCT
ENTRADA EN FASE NACIONAL

SOLICITUD DE



Patente de Invención



Patente de Modelo de Utilidad



Capítulo I



Capítulo II

2

SOLICITANTE
(71)

Nombre **MATTEL, INC**
sociedad constituida y existente bajo las
leyes del Estado de Delaware, Estados
Unidos de América

Dirección 333 Continental Boulevard,
El Segundo, California 90245
Estados Unidos de América
Domicilio El Segundo California
Estados Unidos de América

IDENTIFICACION

C C



NIT



C E



Otro



Cual

Número

3

REPRESENTANTE
O APODERADO

Nombre **EMILIO FERRERO**

Dirección Carrera 4ª No 72-35
Teléfono 347 36 11
Fax 217 92 11
E-mail clientes@camyo.com
Domicilio Bogotá, Colombia

IDENTIFICACION

C C



NIT



C E



Otro



Cual

Número 438.019 T P. 31 929

4

INVENTOR (ES)
(72)

1- Brian L BIENZ
82 Leaside Drive,
West Seneca, New York 14224,
Estados Unidos de América

2- Karl D LERCH
250 Pine Street,
East Aurora, New York 14052,
Estados Unidos de América

5

PCT (86)

Solicitud Internacional No PCT/US01/28637
Publicación Internacional No WO 02/24291 A1

Fecha 13 de septiembre de 2001
Fecha 28 de marzo de 2002

6

Título (54) VEHICULO MONTABLE PARA NIÑOS

7

Clasificación Internacional (51) A63H 17/16

8

Prioridad

SI



NO



(33) País de Origen

US

(32) Fecha

18 de septiembre de 2000

(31) Número de Solicitud

09/665 195

9

Comprobante de pago No 03 - 17 215 Fecha 10 de marzo de 2003

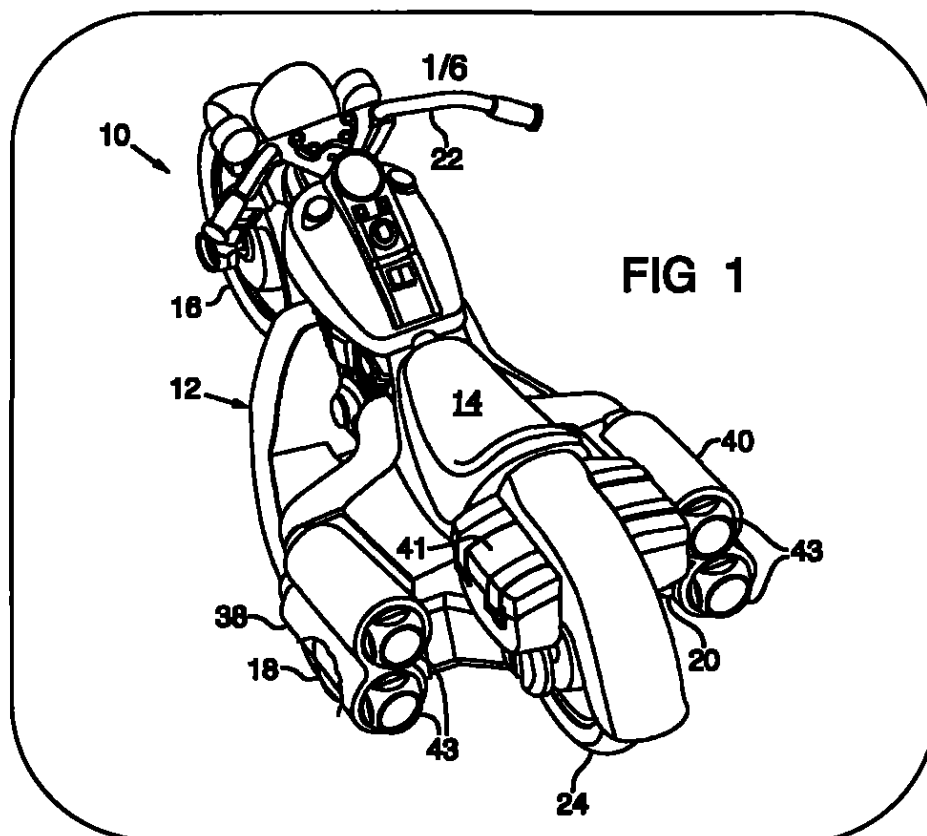
10

Anexos

- ☒ Comprobante de pago de la tasa de presentación de la solicitud por \$ 400 000 oo
- ☐ Comprobante de pago por reivindicación de prioridad
- ☒ Documento que acredita la existencia y representación legal cuando el solicitante sea persona jurídica
- ☒ Poderes, si fuere el caso
- ☒ Documento de cesión del inventor al solicitante o a su causante
- ☐ Declaraciones
- ☒ Copia de la solicitud Internacional (Resumen, descripción, reivindicaciones, dibujos)
- ☒ Traducción de la solicitud Internacional al castellano (Resumen, descripción, reivindicaciones dibujos)
- ☒ Copia del examen preliminar efectuado por la IPEA
- ☐ Traducción del examen preliminar efectuado por la IPEA.
- ☐ De ser el caso, copia del contrato de acceso
- ☐ De ser el caso, documento que acredite la licencia o autorización de uso de conocimientos tradicionales de las comunidades indígenas
- ☐ De ser el caso, certificado de depósito del material biológico
- ☒ Arte final 12x12
- ☐ De ser el caso, información sobre otras solicitudes de patente o títulos obtenidos en el extranjero por el mismo titular o su causante, relacionadas parcial o totalmente con la invención de esta solicitud
- ☒ Copia Básica Internacional No PCT/US01/28637

11

FIGURA CARACTERISTICA.



12

Solicito la concesión de la patente,

NOMBRE EMILIO FERRERO

FIRMA 

C C 438 019 de Usaquén T P 31 929

JBP/mrm-ld-321

CAVELIER
ABOGADOSEDIFICIO SUÑI
CARRERA 4ª N° 72-35
BOGOTÁ, S. COLOMBIAFor patents, utility designs, trademarks, service marks,
commercial names, insignia.Para patentes, modelos y dibujos industriales, marcas
de fábrica y de servicio, nombres comerciales y
enseñas.**REPRESENTACION Y PODER****REPRESENTATION AND
POWER OF ATTORNEY**

X (we) the undersigned / Yo (nosotros), abajo firmado(s)

MATTEL, INC. -

of / domiciliado(s) en 333 Continental Blvd.,

El Segundo, California 90245-5012 U.S.A

por el presente nombramos a GERMAN CAVELIER, tpa. 832, GONZALO PERDOMO, tpa. 831, ERNESTO CAVELIER, tpa. 11519 y EMILIO FERRERO, tpa. 31929 domiciliados en la Carrera 4ª N° 72-35, Bogotá, Colombia, en obediencia a lo dispuesto en el parágrafo 1º del Artículo 543 del Código de Comercio, el primero como principal y los demás como suplentes, en su orden, como nuestros representantes en todos los asuntos de propiedad industrial con facultad para recibir notificaciones y nombrar apoderados judiciales o extrajudiciales. El primer representante suplente reemplazará al principal en caso de ausencia o impedimento temporal o definitivo de aquél. La misma regla se aplicará cuando el segundo representante suplente haya de reemplazar al primero, o el tercero al segundo. En tales casos el representante principal, o el primero, o segundo suplente, en su caso, o ambos, declararán su intención de no ejercer la representación mediante declaración autenticada por Notario Público en Colombia, o por Notario u otro Funcionario Público, o Cónsul de Colombia, en el extranjero, y si se tratare de impedimento, con el certificado respectivo. Si alguno de los nombrados faltare definitivamente, el siguiente tomará su lugar. Cuando cesare la ausencia o impedimento del representante principal, o de su primero o segundo suplente en su caso, podrán ejercer la representación, en su orden, uno u otros según el caso, asumiéndola por el solo hecho de ejercerla, cesando en ese momento el ejercicio de la representación por el primero, segundo o tercer suplente en su caso.

Además, y bajo las mismas reglas, conferimos poder a los abogados arriba nombrados, para obtener la protección de mi (nuestra) propiedad industrial y contra la competencia desleal, a cuyo efecto autorizo(amos) a los dichos apoderados para que me(nos) representen ante cualesquiera entidades o personas, ejerzan o no jurisdicción, especialmente ante las del orden administrativo, contencioso-administrativo y judicial, en todo lo concerniente a los siguientes asuntos: a) Obtención de patentes de invención, modelos y dibujos industriales, el registro de marcas de fábrica, colectivas, defensivas y de servicios, el depósito de nombres comerciales y enseñás su renovación, traspaso, cambio de nombre o domicilio, cancelación voluntaria, y el registro de licencias de uso de esos derechos b) Las acciones de oposición, cancelación, nulidad, medidas cautelares, concesión de licencias y en general los juicios civiles, penales, administrativos o contencioso-administrativos relacionados con estos derechos acciones y juicios que promovamos o se nos promuevan. Y para que en todos los asuntos arriba determinados, puedan sustituir este mandato, transigir, desistir, cancelar, recibir, renunciar y ratificar los actos hechos por agentes oficiales.

in due compliance with the terms of paragraph 1st. of article 543 of the Commercial Code, do hereby appoint GERMAN CAVELIER, tpa. 832, GONZALO PERDOMO, tpa. 831, ERNESTO CAVELIER, tpa. 11519, and EMILIO FERRERO tpa. 31929, domiciled at Carrera 4ª N° 72-35, Bogotá, Colombia, the first as principal and the others as alternates, in the order of their appointment, as our representatives for all industrial property matters with faculty to receive notifications and to appoint attorneys in and out of Court. The first alternate shall replace the principal in case of his absence or a temporal or definitive impediment. The same rule will apply when the second alternate representative is to replace the first one, or when the third is to replace the second. In such cases, the principal representative, or the first or second alternates in their turn, or both of them, shall state their intention not to act as representatives through a declaration given before a Notary Public in Colombia, or before a Notary or another Public Official or a Colombian Consul abroad, and in case of impediment, the appropriate certificate shall suffice. If any of the appointees were to be definitely absent, the following alternate shall take his place. When the absence or impediment of the principal representative or of the first or second alternate in their turn ceases, the representation can be taken again in their sequence, by the principal, the first or second alternate depending on case, and the mere fact of its exercise will suffice. The exercise of the representation by the first, second or third alternates in their turn shall end at such time. In addition, we grant a Power of Attorney in favor of the above-named attorneys-at-law so that they may obtain the protection of my (our) industrial property and against the unfair competition, for which purpose I (we) authorize the said attorneys to represent me (us) before any authorities or persons, with or without jurisdiction, specially those administrative, administrative contentious and judicial, in all matters concerning the following: a) Obtainment of patents, models and designs, the registration of trademarks, collective, defensive and service marks, the deposit of commercial names and insignia, its renewal, assignment, change of name or domicile, voluntary cancellation, and the registration of licenses of use of the above, rights b) Actions of opposition, cancellation, nullity, infringement, granting of licenses, and in general the civil, penal, and administrative suits relating to those rights, actions and suits instituted by me (us) or against me (us). And that in all the above matters they may substitute this Power of Attorney, compromise, desist, cancel, transact, resign and ratify acts done by representatives without the power of attorney.

Given and signed this / Dado y firmado hoy
8th day of August.

in / en El Segundo, California

MATTEL, INC

Firma

Stephen L. Hartley, Assistant Secretary

(Notary should execute on other side)
(Consular legalization necessary)

TRADUCCION OFICIAL No. 333/91

ALICIA GPOOF
INTERPRETE OFICIALRESOLUCION No. 2183 ABRIL 17 1990
DEL MINISTERIO DE JUSTICIA.

18 MAR 2003

JUAN MANUEL BOTERO RODRIGUEZ
NOTARIO

Signature

CERTIFICADO NOTARIAL (INDIVIDUO)

A los días del mes de de 19
ante mi Notario Público de
compareció(eron) personalmente

a quien(es) doy fe de conocer y me consta que es (son)
la(s) persona(s) firmante(s) del documento que pre-
cede, y quien(es) tiene(n) capacidad legal para otor-
garlo.

Notario Público — Notary Public

CERTIFICADO NOTARIAL (SOCIEDAD)

Hoy 6 de agosto re 19 91
compareció(eron) ante mi Stephen L. Hartley

a quien(es) conozco personalmente y que firma(n)
este documento en representación de la Sociedad/Com-
pañía denominada MATTEL, INC.

Certifico

1 Que he visto los siguientes documento *
Certificado de Constitución confir-
mado de MATTEL, INC

2 Que dichos documentos son los siguientes:
2.1 Que MATTEL, INC. es una Sociedad/Compañía legalmente constituida y
existente de acuerdo con las leyes de Estado de
Delaware

2.2 Que el domicilio de dicha Sociedad/Compañía es
333 Continental Blvd., El Segundo,
California.

2.3 Que el objeto u objeto para los cuales se otorga
el presente poder están comprendidos dentro del ob-
jeto social de la mencionada Sociedad/Compañía

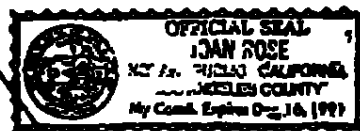
2.4 Que el Sr. Stephen L. Hartley

esta (X) autorizado(s) para otorgar el presente Poder
Ciudad El Segundo
Estado California
Hoy 6 de agosto de 19 91

Notario Público — Notary Public

Documents must be identified with date and origin.

TRADUCCION OFICIAL No. 333/91
ALICIA GROOT
INTERPRETE OFICIAL
RESOLUCION No. 8175 APT. L. 17 1989
DEL MINISTERIO DE JUSTICIA



NOTARIAL CERTIFICATE (INDIVIDUAL)

On this 6th day of August 19 91
before me a Notary Public of
Los Angeles County, State of
California, that Stephen L.
Hartley is

to me known, and known to me to be the person(s)
who executed that foregoing document, and who has
(has) legal capacity to execute it.

Joan Rose

NOTARIAL CERTIFICATE (CORPORATION)

On this 6th day of August 19 91
appeared before me Stephen L. Hartley

who(m) I know personally and who(m) signed this do-
cument as representative(s) of the Corporation/Com-
pany named MATTEL, INC

I Certify

1 That I have seen the following documents *

RESTATE'D CERTIFICATE OF
INCORPORATION OF MATTEL, INC

2 That the above documents duly prove the follow-
ing

2.1 That MATTEL, INC.

is a Corporation/Company legally constituted and in
existence in accordance with the laws of
the state of Delaware

2.2 That the domicile of said Corporation/Company is
333 Continental Blvd.,
El Segundo California

2.3 That the purpose or purposes for which the pre-
sent Power of Attorney is granted are comprised
within the corporation purposes set forth in the char-
ter of the mentioned Corporation/Company

2.4 That Mr Stephen L. Hartley

is (are) authorized to grant the present Power of
Attorney
City El Segundo
State California
This 6th day of August 19 91



* Los documentos deben identificarse con fecha y origen.

STATE OF CALIFORNIA
COUNTY OF LOS ANGELES

CHARLES WEISSBURD Registrar-Recorder/County Clerk of the County of Los Angeles, State of California a public entity having by law
a seal do hereby certify that Jean Rose whose name is subscribed to the annexed

acknowledgment, proof or affidavit, was at the time of signing same a Notary Public FOR LOS
ANGELES COUNTY duly commissioned and sworn, with principal place of business or employment
in said County and was, as such, an officer of said State, duly authorized by the laws thereof
to execute the same as well as to execute the proof and acknowledgment of deeds and other
instruments of writing to be recorded in said State to take depositions and/or affidavits, and
to administer oaths or affirmations, in any County in this State, and that full faith and credit
are and ought to be given to said officer's official acts; that the proof or certificate of such officer
is required to be under seal; that the impression of the official seal of said officer is not required
by law to be on file in the office of the County Clerk, I further certify that I am well acquainted
with the handwriting of said officer and verily believe that the signature to the attached document
is genuine, and further that the annexed instrument is executed according to the laws of the
State of California.

Signed and seal of aforesaid County official at Los Angeles

AUG 07 1991

Charles Weissburd, Registrar-Recorder/County Clerk of the County
of Los Angeles, State of California

18 MAR 2004

JUAN MANUEL GOMEZ MEDINA
NOTARIO

CONSULADO DE COLOMBIA NO 2073

En Angela Ca Agosto 8/91

Lugar y fecha

BUSCRITO CONSUL DE COLOMBIA

CERTIFICA

al señor Carlos Velez

se autoriza el presente documento,

para legalmente, en la fecha allí

presada, las funciones de

Consul Clerk en Angela

que la firma y sello que en el docu-

mento aparecen como suyos son los que

se acostumbra en sus actos oficiales

EL CONSUL NO ASUME RESPONSABILIDAD

ALGUN POR EL CONTENIDO DEL

DOCUMENTO

Firma y sello

Maria Mercedes De Cruz

Maria Mercedes De Cruz

Viceconsul de Colombia



TRADUCCION OFICIAL No. 333/91
ALICIA GROOT
INTERPRETE OFICIAL
RESOLUCION No. 2195 ABRIL 17 1989
GOBIERNO DE COLOMBIA

CONSULADO DE COLOMBIA
LOS ANGELES

MINISTERIO DE RELACIONES EXTERIORES
SECCION NEGOCIOS GENERALES

HACE CONSTAR:

que el señor Carlos Velez
firma el presente documento,
con su firma y sello,
en la fecha y lugar
indicados.

COMO NOTARIO SEÑOR DE LA CIUDAD DE BOGOTA, HAGO CONSTAR QUE LA FOTOCOPIA CONCORDA CON EL ORIGINAL QUE SE ENVIÓ A LA AGENCIA.
18 MAR 2001
JUAN MANUEL HERRERA MEDINA
NOTARIO

891051788417

BANCO REAL DE COLOMBIA
Chile
OCT 3 1991



DECLARACION Y PAGO DEL IMPUESTO DE TIMBRE NACIONAL

BANCO REAL DE COLOMBIA

08-059-01-006032-0

DATOS GENERALES	1 Administración de Impuestos de SANTA FE DE BOGOTÁ		Código 03	2 Teléfono 2120100
	3 Documento de identificación (marque X) C.C. 6 T.L. ☐ NIT ☒ No. 850.041 367		D.V. 3	4 Apellidos y Nombres o Razón Social de las partes (máximo 60 caracteres). CAVELIER ABOGADOS
	5 C.C. 6 T.L. ☒ NIT ☐ No. 19'301.629		D.V. 1	6 Apellidos y Nombres o Razón Social de las partes (máximo 60 caracteres). FORERO ROCHA JAIME
	7 Dirección (de la persona o entidad identificada en la canal 4) Cra 4a No 72-35		Municipio BOGOTÁ	Departamento CUNDINAMARCA
	8 Relación al(los) tipo(s) de documento(s), indicando número, fecha, valor y naturaleza de la transacción TIMBRE TRADUCCION OFICIAL No 383/91 DE OCTUBRE 01 DE 1991, PAGO DE LOS DERECHOS DE TRADUCCION DE UN DOCUMENTO DE REPRESENTACION Y PODER.		9 Número documento entradado 1	
CONCEPTO	10 COLO 0573-51-037-7			

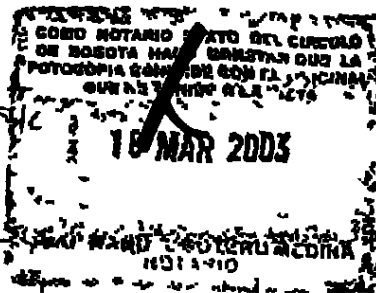
FIRMA	Responsable del pago
	Nombre C.C. No. 19.331.629

1 VALOR DE IMPUESTO A PAGAR	1.200
2 Sencillas	
3 Intensas de mora	
4 TOTAL A PAGAR (sumamos 1+2+3)	1.200
Efecto ☒ Cheque ☐	
5 1.200	Código Banco 03

42*****10200005
59#02 03-10-91

DEM-01-02-90

CONTRIBUYENTE



TRADUCCION OFICIAL No 333/91 de un documento escrito en Inglés, el cual para su identificación se sella con el sello del traductor lo mismo que la presente ----- Autenticaciones que se hallan a continuación de un documento de Representación y Poder, escrito en Inglés y en Español, otorgado por la sociedad MATTEL, INC a los doctores GERMAN CAVELIER, GONZALO PERDOMO, ERNESTO CAVELIER y EMILIO FERRERO

Dado y firmado el día 8 de agosto de 1991, en El Segundo, California

MATTEL, INC

(firmado) Stephen L Hartley

Stepnen L hartley, Secretario Adjunto

(El Notario debe firmar al dorso)

(Es necesaria la legalización Consular)

Al dorso, escrito en Inglés y en Español, Certificado Notarial (Sociedad), referente a la firma del señor Stephen L Hartley, en representación de la sociedad denominada MATTEL, INC

Otorgado en la ciudad de El Segundo, Estado de California, el día 6 de agosto de 1991

(firmado) Joan Rose

Notaria Pública

Hay un sello en tinta que dice SELLO OFICIAL - JOAN ROSE - NOTARIA PUBLICA - CALIFORNIA - CONDADO DE LOS ANGELES

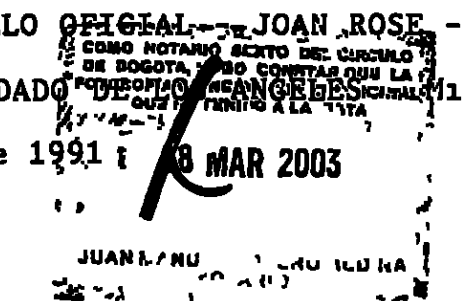
Comisión vence el 16 de diciembre de 1991

Anexo hay un certificado que dice

ESTADO DE CALIFORNIA

CONDADO DE LOS ANGELES

Yo, CHARLES WEISSBURD, Registrador y Escribano del Condado del Condado de Los Angeles, Estado de California,



TRADUCCION OFICIAL No 333/91
L. I. G. O.
INTERPRETE OFICIAL
RESOLUCION No 2183 ABR 17, 1988
DEL MINISTERIO DE JUSTICIA

entidad pública que tiene por ley un sello, por medio del presente certifico que JOAN ROSE, cuyo nombre está suscrito en el adjunto reconocimiento, prueba o declaración juramentada, era en el momento de firmarlo, Notaria Pública PARA EL CONDADO DE LOS ANGELES, debidamente comisionada y juramentada, con la principal sede de negocios o empleo en dicho Condado, y era, como tal, funcionaria de dicho Estado, debidamente autorizada por las leyes del mismo para otorgarlo, así como para otorgar la prueba y reconocimiento de escrituras y demás instrumentos escritos que deban registrarse en dicho Estado, tomar declaraciones y/o testimonios, y administrar juramentos o afirmaciones, en cualquier Condado de este Estado, y que plena fe y crédito se dan y deben darse a los actos oficiales de dicha funcionaria, que se requiere que la prueba o certificado de dicha funcionaria esté bajo sello, que no se requiere por ley que la impresión del sello oficial de dicha funcionaria esté registrada en la oficina del Escribano del Condado. Certifico además que estoy suficientemente familiarizado con la letra de dicha funcionaria y verdaderamente creo que la firma en el documento adjunto es auténtica, y además que el instrumento adjunto está otorgado de conformidad con las leyes del Estado de California

Firmado y puesto el sello del Consulado mencionado en
Los Angeles, el 7 de agosto de 1991

(firmado) Charles Weissburd

Charles Weissburd, Registrador y Escribano de
Condado del Condado de Los Angeles, Estado de
California

Adherido hay un sello en relieve (oblea dorada), que dice
REGISTRADOR/ESCRIBANO DEL CONDADO - CONDADO DE LOS ANGELES -
CALIFORNIA

18 MAR 2003

EMBAJADA OFICIAL N. 333/91
 ALICIA GROSS
 INTERPRETE OFICIAL
 RESOLUCION N. 315 ABR 17 1980
 DEL MIN ESTADO DE JUSTICIA.

En español, legalizaciones de la firma del señor Charles Weissburd, hasta por el Ministerio de Relaciones Exteriores de la República de Colombia, bajo el Número 214153, de fecha 26 de septiembre de 1991, firmado por el señor José Angel Aldana, Jefe Negocios Generales
Pagado el Impuesto de Timbre, por la suma de Seis Dólares (US\$6,00)

ES TRADUCCION FIEL Y COMPLETA del documento en referencia
Santa Fe de Bogotá, D C , Octubre 1o de 1991
AG/c

Alicia Ghoot
TRADUCCION OFICIAL No. 333/91
ALICIA GHOOT
INTERPRETE OFICIAL
RESOLUCION No. 2135, ABRIL 17, 1989
DEL MINISTERIO DE JUSTICIA.

No. 222762
MINISTERIO DE RELACIONES EXTERIORES
SECCIÓN NEGOCIOS GENERALES
HACE CONSTAR
Que el señor Alicia Ghoot
Cuya firma aparece al pie del presente documento, desempeñaba en la fecha las funciones allí indicadas.
Santa Fe de Bogotá, D. C. 08 OCT. 1991
JOSE ANGE ALDAN.
JEFE NEGOCIOS GENERALES

COMO NOTARIO SIENTO DEL CIRCULO DE BOGOTÁ, HAGO CONSTAR QUE LA FOTOCOPIA COINCIDE CON EL ORIGINAL QUE ME TENIA A LA VISTA
18 MAR 2003
JUAN MA L. L. O MEDINA

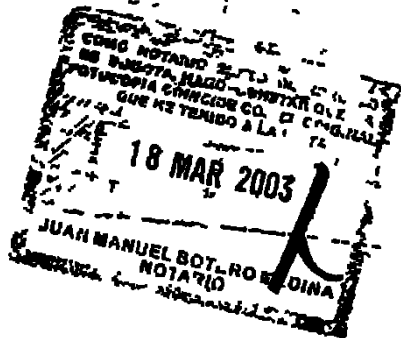
COMO NOTARIA SEXTA DE BOGOTA HAGO CONSTAR QUE LA FIRMA QUE AUTORIZA ESTE DOCUMENTO Y QUE DICE

..... *Alicia Groot*

C C No

ES AUTENTICA
BOGOTA D E

03 JUL 1991



CAVELIER

ABOGADOS

EDIFICIO SISKI

**CARRERA 4ª No 72 35
BOGOTA 8 COLOMBIA**

CORREO ELECTRONICO MUNDIAL CAVE

TELEFONO (57) (1) 2120100

CABLES CAVELEYES

TELEFAX (57) (1) 2338830

TELEX 45479 CAVE CO

(23)7407373 CAVE UC

**Señor Jefe de la
DIVISION DE NUEVAS CREACIONES
Superintendencia de Industria y Comercio
E S D**

Poderdante MATTEL, INC

Poder conferido el 08-08-91

Yo, GERMAN CAVELIER, obrando en mi calidad de apoderado principal del poderdante arriba mencionado atentamente manifiesto a Usted que sustituyo el poder que me ha sido conferido en la persona del doctor EMILIO FERRERO, Abogado con Tarjeta Profesional No 31 929, con todas las facultades que me fueron conferidas

Hago la anterior sustitucion conforme al articulo 66 delCodigo de Procedimiento Civil ya que los otros sustitutos faltan en este momento

Señor Jefe,



GERMAN CAVELIER

T P A No 832

C C No 2 877 924 de Bogota

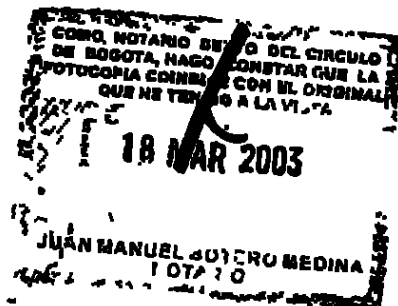
Acepto



EMILIO FERRERO

T P A No 31 929

C C No 438 019 de Usaquen



2e-780-2

**NOTARIA SEXTA DE SANTAFE DE BOGOTA
RECONOCIMIENTO Y PRESENTACION PERSONAL**

Santafé de Bogotá D. C.
Ante MI, PABLO MENDEZ BARAJAS
NOTARIO SEXTO ENCARGADO DEL CIRCULO DE SANTAFE
DE BOGOTA

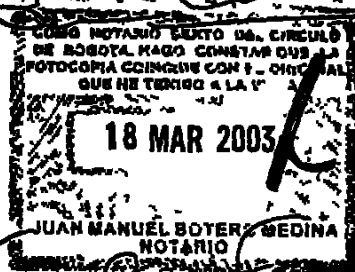
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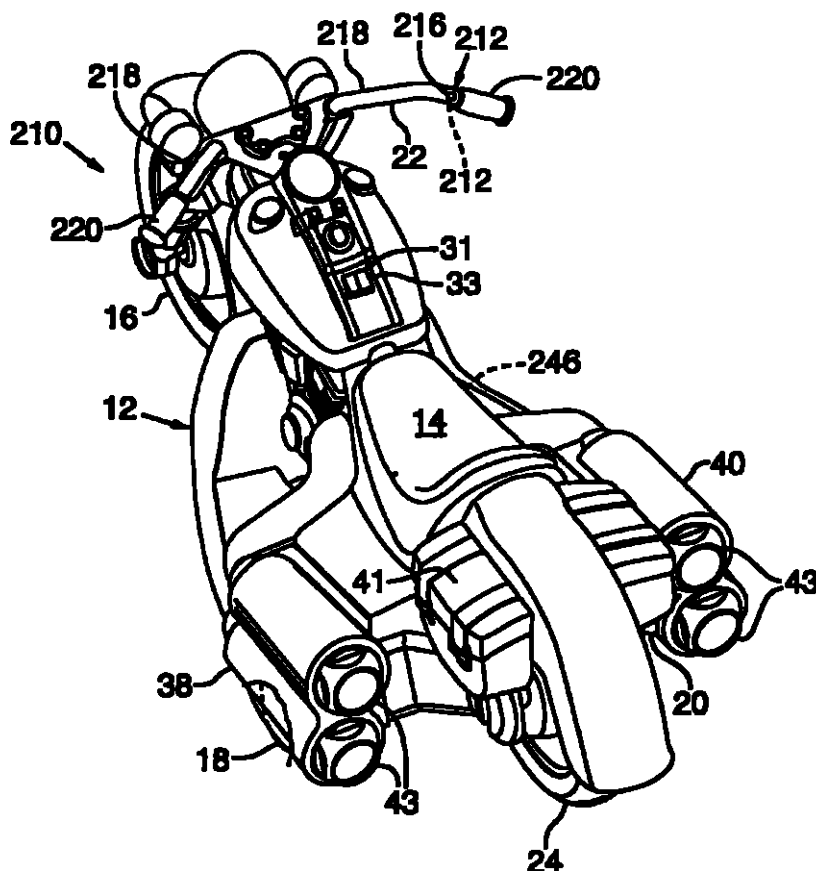
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(54) Title: CHILDREN'S RIDE-ON VEHICLE



(57) Abstract: Ride-on vehicle (10/210) includes frame (12) adapted to support a child and a drive assembly with a battery powered motor assembly. The ride-on further includes one or more steerable wheels (16) and one or more driven wheels (20). In some embodiments, the ride-on resembles a full-size motorcycle. In some embodiments, the ride-on includes a free-floating wheel (24), which is unbiased and travels up and down within a defined range of positions with respect to the ride-on's frame as external forces are imparted to the wheel. In some embodiments, the ride-on's frame includes a high-speed switch (214/216) for momentary high-speed travel of the vehicle.

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Children's Ride-On Vehicle

Field of the Invention

The invention relates generally to children's ride-on vehicles.

Background and Summary of the Invention

5 Ride-on vehicles for children have become increasingly popular due in part to the desire of children to drive self-propelled vehicles resembling full-size vehicles. Such ride-on vehicles, or ride-ons, are typically propelled by battery-powered motors and generally include scaled-down features of full-size vehicles.

One challenge in designing reduced-scale vehicles is to make the
10 vehicle resemble a full-size vehicle, while still providing a vehicle that is safe for use by children. When a ride-on is designed to resemble a four-wheeled vehicle, such as a car or truck, the corresponding ride-on tends to also have four wheels. When a ride-on is designed to resemble a motorcycle, however, a balance must be reached between safety and the accuracy of the reproduction. Certainly the most accurate reproduction
15 is for the ride-on to only have two wheels. However, children may not have the size, strength or coordination to balance a two wheeled ride-on, especially when propelled by the ride-on's motor. Adding additional wheels to the ride-on detracts from the accuracy of the reproduction, and thus may reduce the child's desire for the ride-on.

The invented ride-on, or ride-on vehicle, includes a frame adapted to
20 support a child, and a drive assembly with a battery-powered motor assembly. The ride-on further includes one or more steerable wheel and one or more driven wheel. In some embodiments, the ride-on resembles a full-size motorcycle. In some embodiments, the ride-on includes a free-floating wheel, which is unbiased and travels within a defined range of positions with respect to the ride-on's frame as external
25 forces are imparted to the wheel. In some embodiments, the ride-on includes a high-speed switch positioned for momentary high-speed operation of the vehicle.

Brief Description of the Drawings

Fig. 1 is an isometric view of a children's ride-on constructed according to the present invention, with a portion of the ride-on's frame broken away
30 to expose a drive wheel.

Fig. 2 is a side elevation view of the ride-on of Fig. 1

Fig. 3 is a cross-sectional view of one of the drive wheels shown in Fig. 1

Fig. 4 is an exploded isometric view of the wheel bearing and gear shown in Fig. 3

5 Fig. 5 is an exploded isometric view of the free-floating rear wheel shown in Fig. 4

Fig. 6 is a cross-sectional view of the wheel of Fig. 5

Fig. 7 is a fragmentary side elevation view of the rear portion of the ride-on of Fig. 4 on a straight surface

10 Fig. 8 is the side elevation view of Fig. 7, with the rear wheel raised from the position of Fig. 7 to accommodate travel over an uneven surface.

Fig. 9 is the side elevation view of Fig. 7, with the rear wheel lowered from the position of Fig. 7 to accommodate travel over another uneven surface.

15 Fig. 10 is an isometric view of another children's ride-on vehicle according to the present invention.

Fig. 11 is a schematic wiring diagram

Fig. 12 is a top plan view showing another embodiment of a ride-on vehicle according to the present invention.

Detailed Description of the Preferred Embodiments

and Best Mode of the Invention

20 A children's ride-on constructed according to the present invention is shown in Fig. 1 and generally indicated at 10. Ride-on 10 includes a frame, or vehicle body, 12 with a seat 14, a forward wheel 16, drive wheels 18 and 20, a steering mechanism 22, and a rear wheel 24.

25 As shown, ride-on 10 generally resembles a reduced-scale motorcycle, and more particularly a reduced-scale Harley-Davidson® motorcycle. It should be understood that ride-on 10 may be shaped to resemble other motorcycles and two-wheeled vehicles. Frame 12 typically is formed from molded plastic parts that are secured together by screws or other suitable fasteners. As shown in Fig. 2, frame 12 is
30 shaped to resemble components of a conventional motorcycle, including a head light 26, front fender and struts 27 and 28, dash board 30, gas tank 32, engine 34, foot boards 36, exhaust pipes 38 and 40 (shown in Fig. 1), saddle bag 41, rear fender 42,

tail lights 43 and swing arms 44 and 45 (shown in Fig 5) Frame 12 also houses the vehicle's electrically powered motor assembly, battery assembly, and electrical and mechanical interconnections (not shown) It should be understood that the motor and battery assemblies each may include one or more motors or batteries, respectively It should be understood that the shape and configuration of the frame will vary depending on the particular model and style of motorcycle that ride-on 10 is designed to resemble

It is within the scope of the present invention that the ride-on may resemble other types of full-sized vehicles, such as cars, trucks, off-road vehicles, construction equipment, aircraft, seacraft and the like. Similarly, the ride-on may have a unique body shape or configuration that is designed to appeal to children and which does not necessarily resemble a reduced-scale version of a conventional full-sized vehicle

In the embodiment of the ride-on shown in Figs 1 and 2, it can be seen that drive wheels 18 and 20 are substantially housed within the portions of frame 12 forming exhaust pipes 38 and 40 By "drive wheel" or "driven wheel" it is meant that the rotational output of the ride-on's motor assembly drives the rotation of the wheel about, or with, its axle or other mount. This is compared to a non-driven wheel, which rotates in the direction of movement of the ride-on, but is not directly coupled to the rotational output of the ride-on's motor assembly

Because its drive (also referred to as driven) wheels are substantially hidden from view, ride-on 10 has the appearance of a two-wheeled motorcycle, even though it has at least three wheels supporting the frame in a stable operating position In fact, in Fig. 1 it can be seen that a portion of the frame forming exhaust pipe 38 had to be broken away to reveal drive wheel 18 Similarly, drive wheel 20 is almost completely hidden from view by "exhaust pipe" 40 In Fig. 2, it can be seen that the lower portion of exhaust pipe 38 is removed to provide additional clearance for drive wheel 18 It is within the scope of the present invention that the exhaust pipes may have less of their lower portions removed, such as shown in dashed lines in Fig. 2 Furthermore, although a pair of driven wheels are shown in Figs 1 and 2, it is within the scope of the invention that more or less driven wheels may be used, either alone or in combination with one or more additional non-driven wheels.

Because ride-on vehicles are often used by young children who may not have the strength, size and/or coordination to balance a two-wheeled vehicle, ride-on 10 provides at least three spaced-apart supports that stabilize the ride-on. More specifically, front wheel 16 and drive wheels 18 and 20 form a tricycle. However, by
5 hiding the drive wheels within the frame, ride-on 10 enables the child to feel and look like it is riding a two-wheeled motorcycle.

In Fig. 3, the interconnection between drive wheel 20 and the ride-on's motor assembly is shown. It should be understood that drive wheel 18 is coupled to the motor assembly with a similar set of interconnections. As shown, an axle 46
10 extends through wheel 20, which includes an outer recess 48 into which an axle bushing 50 is seated. Axle 46 passes through bushing 50, and wheel 20 is retained on the axle by a cap nut 52 or other suitable fastener. Wheel 20 includes an inner face 54 that includes a recess 56 within which a wheel bearing 58 is received. Bearing 58 is rotatably mounted on axle 46 and includes plural outer ribs 60 that extend radially
15 outward from axle 46. Outer ribs 60 are received within corresponding channels 62 in recess 56. Once seated therein, wheel 20 rotates when bearing 58 is rotated about, or with, axle 46.

Wheel bearing 58 is rotated by a gear 64, which is driven by the ride-on's motor assembly (not shown) through any suitable mechanical interconnection, as
20 is known in the art. Gear 64 is seated on axle 46 and includes plural teeth 66 that extend into cavities 68 formed by internal ribs 70 within bearing 58. Closing an electrical circuit between the ride-on's battery assembly and its motor assembly imparts an angular velocity to gear 64, which in turn directs the rotation of bearing 58 and drive wheel 20 by the engagement of teeth 66 and internal ribs 70. Because
25 bearing 58 is interlocked with drive wheel 20, the rotation of bearing 58 also causes wheel 20 to rotate, thereby propelling the ride-on in the selected direction.

The circuit described above typically is opened and closed by a switch, which is mounted on the frame in a position where it may be operated by the child. Examples of suitable switches are pedals on one of the ride-on's foot boards 36, a
30 throttle switch on steering mechanism (i.e. handle bars) 22, or a switch on dash board 30. The ride-on's controls may include a reversing switch 31 to enable the child to

selectively change the direction of revolution of the above components, and thereby change the direction of travel of ride-on 10

Unlike drive wheels 18 and 20, which are used to propel ride-on 10, or front wheel 16, which is oriented by steering mechanism 22 to steer the ride-on, rear wheel 24 just goes along for the ride. By this it is meant that wheel 24 is neither driven nor steerable. Instead, it is a free-spinning wheel that freely rotates and travels along a defined path as external forces are imparted upon it. By external forces, it is meant forces that originate from external ride-on 10 and which are imparted directly or indirectly to rear wheel 24. Examples of external forces are gravity and bumps or shocks caused by ride-on 10 traveling over uneven terrain. Wheel 24 may also be described as being free from internal vertical bias when within its defined range of positions because ride-on 10 does not include any spring, lever arm or other biasing mechanism to urge wheel 24 to a particular position. As such, wheel 24 is neither biased nor otherwise loaded to remain in a particular position or orientation with respect to the rest of ride-on 10. Wheel 24 may also be described as traveling or floating within a defined range of positions to adjust freely to changes in elevation in the surface over which ride-on 10 travels.

As shown in Figs 5 and 6, the portions of frame 12 which form the ride-on's "swing arms" 44 and 45 are in fact spaced-apart mounts 72 and 74 between which wheel 24 is rotatably mounted. Mounts 72 and 74 are fixed in place relative to the rest of frame 12, and includes regions 76 and 78 that form a track with vertical channels 80 and 82. As discussed subsequently, channels 80 and 82 cooperate with axle bearings 84 and 86 to define a race or vertical range through which wheel 24 may travel as external forces are applied to the wheel.

As perhaps best seen in Fig. 5, wheel 24 includes a pair of bushings 88 and 90 that are inserted into a corresponding pair of receptacles 92 and 94, one on each side of wheel 24. As shown, the portions of bushings 88 and 90 which are inserted within the receptacles are generally hex-shaped. Receptacles 92 and 94 have a similar shape, thereby enabling wheel 24 to rotate as bushings 88 and 90 rotate. It should be understood that configurations other than the hex-shaped configuration shown in Fig. 5 may be used.

An axle 100 passes through wheel 24 and bushings 88 and 90 to provide an axis about which wheel 24 may rotate. Axle 100 includes a pair of ends 102 and 104, which each are passed through a respective one of channels 80 and 82 and axle bearings 84 and 86. A pair of cap nuts or other suitable fasteners 106 and 108 are mounted on the ends of axle 100. Fasteners 106 and 108 secure the axle bearings, mounts, and wheel together with only a small amount of side-to-side play, while still allowing bushings 88 and 90, and thus wheel 24, to rotate on the axle.

As discussed, channels 80 and 82 define a vertical range of positions within which axle bearings 84 and 86 are free to travel. As shown, channels 80 and 82 each have an oval, or racetrack-shaped opening, through which a stem portion 110 and 112 of one of the axle bearings extends. While the stem portions extend through the bearings, the head portions 114 and 116 of each axle bearing slide up and down the track defined by regions 76 and 78. Movement of axle bearings 84 and 86 up and down in response to uneven terrain is limited by top 118 and bottom 120 limits of channels 80 and 82, which are indicated in Fig. 6.

From a nominal position on level terrain, wheel 24 can move up approximately 0.4 inches and down approximately one inch. By varying the length of the channels or size of the axle bearings, it is possible to define a range of positions which is larger or smaller than this range. For most ride-ons, it is expected that a range of between approximately one inch and approximately three inches will be sufficient. It should be understood, however, that the most suitable range of positions will tend to vary depending upon such factors as the size of the ride-on, the surface upon which it is intended for use, and the distance between the ride-on's drive wheels and free-floating wheel. Therefore ranges outside of those recited above are possible and within the scope of the present invention.

In Fig. 7, ride-on 10 is shown traveling over a straight surface 122. By this it is meant that the surface on which ride-on 10 travels is planar. As shown, surface 122 is level, however it could also be inclined at an angle. In Fig. 7 it can be seen that each of the ride-on's wheels are in contact with surface 122. The position of rear wheel 24 shown in Fig. 7 will be referred to herein as a neutral or intermediate position, since wheel 24 can travel upward and downward from this position, as discussed below. In Fig. 7, the position of axle 100 is generally indicated with a line

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124 extending generally parallel to surface 122. Because wheel 24 is mounted to frame 12 so that it may freely spin and travel up and down as external forces are imparted to the wheel, the frictional contact with surface 122 causes the wheel to rotate as ride-on 10 travels over surface 122. This causes wheel 24 to rotate in a direction and with a speed that corresponds with the speed and direction of ride-on 10. This also makes wheel 24 appear to be a driven wheel, although in reality it is a free-floating wheel.

In Fig. 8, surface 122 is uneven. Specifically, the portion 126 of surface 122 over which wheel 24 is positioned is higher than the portions of the surface over which the ride-on's front and drive wheels 16, 18 and 20 are positioned. Because wheel 24 is not secured or biased to remain in its neutral position, the axle bearings have raised upwardly in their respective regions of the track, thereby also raising rear wheel 24 from its position shown in Fig. 7. For comparison with the position shown in Fig. 7, the position of axle 100 in this elevated position is generally indicated with line 128, and the extent to which wheel 24 has been raised can be seen by the distance between lines 124 and 128.

Because wheel 24 is a free-floating wheel and not a fixed wheel, it may deflect away from its current position when it encounters an external force, such as when ride-on 10 encounters the bump between the uneven portions of surface 122. This enables drive wheels 18 and 20 to remain in contact with surface 122. It should be understood by looking at Fig. 8 that if rear wheel 24 was not a free-floating wheel, the differences in elevation between front and rear wheels 16 and 24 would have resulted in drive wheels 18 and 20 being suspended above surface 122. Since these wheels are the ride-on's drive wheels, the vehicle would not be able to continue along its path until the user or other person freed the ride-on from its stuck position.

On the other hand, if the portion of surface 122 is at a lower elevation than the corresponding portions of the surface over which the ride-on's front wheel travels, then the vehicle also could become stuck if wheel 24 was not a free-floating wheel. Alternatively, rear wheel 24 could be suspended above the surface. For example, in Fig. 9, surface 122 includes a depression 130 over which wheel 24 is positioned. Once suspended above this portion of the surface, the illusion of ride-on 10 being an actual two-wheeled motorcycle would be lost because the rear wheel

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would be elevated above the surface. However, by allowing rear wheel 24 to float within region 76 of the track, the wheel travels downward in the track to remain in contact with the surface. The position of axle 100 in Fig 9 is indicated with a line 130, and the relative distance between this position and the position shown in Fig. 7 is shown between lines 126 and 130

Besides the advantage of preventing the ride-on from becoming wedged or stuck in a position if the drive wheels lose contact with the surface over which the ride-on is traveling, free-floating rear wheel 24 also results in the ride-on looking more like an actual two-wheeled motorcycle because the wheel remains in contact with the ground surface at all times. This frictional contact with the surface causes the wheel to rotate about its axle, much like an actual non-driven wheel of a vehicle. Therefore, wheel 24 will spin in the direction of movement of ride-on 10 and will spin faster or slower as the speed of ride-on 10 is increased or decreased. Furthermore, because mounts 72 and 74 are configured to resemble the swing arm of an actual motorcycle, upward and downward movement of axle bearings 84 and 86 and wheel 24 as ride-on 10 travels over uneven terrain closely resembles the visual appearance of an actual motorcycle traveling over uneven terrain.

Another embodiment of a ride-on according to the present invention is shown in Fig. 10 at 210. Similar to the previously described ride-ons, ride-on 210 generally resembles a motorcycle. Unless otherwise specified, the elements, subelements and possible variations discussed above may be included with ride-on 210. In Fig. 10, it can be seen that the ride-on includes a frame, or vehicle body, 12 with a seat 14 upon which a child operating the ride-on sits, a steering mechanism 22, and a plurality of wheels 16, 18, 20 and 24. Ride-on 210 may be formed with or without free-floating wheel 24, and with driven wheels 18 and 20 with configurations other than housed within exhaust pipes 38 and 40. In Fig. 10, the ride-on includes a switch assembly 212 having a switch (shown in Fig. 11 at 214) and a user-manipulable portion 216 on the steering mechanism 22 of the ride-on. As shown, steering mechanism 22 takes the form of a handlebar assembly in the form of a pair of handlebars 218 having regions 220 adapted to receive the child's hands while the ride-on is being operated. Regions 220 may also be referred to as handgrips because these regions are adapted to be grasped by the child operating the ride-on to steer the ride-

on. It should be understood that the handlebar assembly may include a single handlebar with a pair of handgrips, as opposed to the pair of handlebars shown in Fig 10

Preferably, user-manipulable portion 216 is positioned for actuation by a child without requiring the child's hands to be removed from regions 220. For example, portion 216 may be mounted on the handlebar assembly or other suitable steering mechanism at least proximate the handgrips so that the child's hands do not need to be removed from the handgrips to actuate portion 216. By "at least proximate" it is meant that portion 216 is on, adjacent, or otherwise positioned sufficiently near handgrips 220 so the child's hands can remain on the hand grips, steering wheel, or other suitable structure used to steer and control the direction of the ride-on, without a loss of control when the child selects high-speed operation of the ride-on by pressing or otherwise actuating portion 216.

Switch assembly 212 selectively configures the ride-on's drive assembly for high-speed operation. Switch 214 and corresponding portion 216 may take any suitable form, such as toggle switches, rotatable members, momentary switches, rocker switches, push-buttons, etc. In some embodiments, switch assembly 212 is configured to require constant pressure from the child to remain in the high-speed configuration. For example, the switch assembly may include a biasing mechanism, such as a spring 222, that biases the switch assembly to return to the low-speed configuration when portion 216 is released by the child. This prevents the ride-on from being inadvertently operated in the high speed configuration. In such a configuration, switch assembly 212 may be thought of as providing a "turbo switch" that a child operating the ride-on may use to provide a "boost" of power. More particularly, when the ride-on is configured to be driven in a forward direction and the child presses portion 216, the ride-on will now travel at a higher speed than before the button was pressed.

An example of a suitable wiring diagram for ride-on 210 is shown in Fig. 11. Similar to the previously discussed ride-ons, ride-on 210 includes a drive assembly 230 that includes a motor assembly 232 and a battery assembly 234. The motor assembly includes one or more motors, and the battery assembly includes one or more batteries. For example, in Fig. 11 the drive assembly is shown including a

pair of motors 236 and 238 powered by a single battery 240. It should be understood that the drive assemblies for the ride-ons discussed herein may include two motors powered by a single battery or a pair of batteries, or alternatively, may include a single motor powered by one or more batteries.

5 Although not required, an advantage of having more than one motor, more than one battery, or both, is that the speeds of operation of the ride-on may be varied by selectively connecting the motors or batteries between parallel and series configurations. For example, a pair of six-volt batteries will deliver six volts to a motor assembly if connected in parallel, and 12 volts if connected in series. Similarly,
10 a battery assembly adapted to deliver 12 volts to a motor assembly that includes a pair of motors will deliver 12 volts to each motor if the motors are connected in parallel, and 6 volts to each motor if the motors are connected in series.

 Also shown in Fig. 11 are switches 31, 214 and 242. Switch 31 is a reversing switch that includes a user-manipulable portion 33 (shown in Fig. 10) that
15 enables a user to selectively change the direction the ride-on travels by reversing the polarity of the current from the battery assembly to the motor assembly. Switch 214, discussed above, is a "turbo" switch that selectively causes high-speed operation of the ride-on. Switch 242 is an on/off switch that includes a user-manipulable portion
20 246 that is selectively actuated by the user to complete the electrical circuit between the ride-on's motor and battery assemblies, thereby causing driven operation of the ride-on. An illustrative example of a suitable portion 246 is a foot pedal on one of the ride-on's running boards, such as shown in Fig. 10. A suitable foot pedal is disclosed in U.S. Patent No. 5,319,996, which is hereby incorporated by reference. Other
25 examples include a rotary grip on the ride-on's handlebars and a pushbutton, shiftable lever or the like on the ride-on's dashboard. In Fig. 11, switches 31 and 214 are shown as double-pole double-throw switches, although any suitable switch mechanism may be used. In Fig. 11, switches 214 and 242 are shown as momentary switches that are respectively biased, such as with springs, to the low-speed and off configurations.

30 In the diagram shown in Fig. 11, it can be seen that the drive assembly does not permit high-speed operation of the ride-on in the reverse direction. This safety feature prevents the child from being able to drive the vehicle in reverse at high

speeds. In the diagram shown, power is no longer delivered to the motor assembly if high-speed, reverse operation is selected. Alternatively, the wiring harness may be configured to produce low-speed reverse operation regardless of whether high- or low-speed reverse operation is selected by the child. An example of another suitable switch assembly adapted to preclude high-speed operation of the ride-on in a reverse direction is disclosed in U.S. Patent No. 5,644,114, which is hereby incorporated by reference.

It should be understood that the wiring diagram shown in Fig. 11 is for the purpose of illustration and that other suitable wiring diagrams, or wiring harnesses, may be used. For example, reversing switch 31 may be omitted to produce a ride-on that is driven by motor assembly 232 in one direction only. As another example, omission of speed switch 212 results in a ride-on that is driven at a single speed by motor assembly 232.

It should be understood that the above-described "turbo switch" may be used on ride-ons having configurations other than the illustrative embodiment shown in Fig. 10. For example, it may be used on battery-powered ride-ons that resemble other forms of full-sized vehicles, such as cars, trucks, off-road vehicles, aircraft, and the like, as well as battery-powered ride-ons that have unique shapes and designs. Furthermore, switch assembly 212 may be used with other types of steering mechanisms, such as steering wheels, a single handlebar, and steering levers.

For example, in Fig. 12 a ride-on is shown at 250 that includes a steering mechanism 22 in the form of a steering wheel 252. It should be understood that ride-on 250 includes any of the drive assemblies described above with respect to ride-on 210. As shown, wheel 252 includes user-manipulable portion 216 of "turbo" switch assembly 212 positioned for engagement by a child holding steering wheel 252 having user-grippable portion 254. Additional user-manipulable portions 216 are shown in dashed lines in Fig. 12 to indicate that the ride-on may include more than one user-manipulable portion 216, such as to enable a wider range of positions in which the child may grasp steering mechanism 22 and actuate at least one of the user-manipulable portions without removing the child's hands from the steering mechanism.

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While the invention has been disclosed in its preferred form, the specific embodiments thereof as disclosed and illustrated herein are not to be considered in a limiting sense as numerous variations are possible. Applicants regard the subject matter of their invention to include all novel and non-obvious combinations and subcombinations of the various elements, features, functions and/or properties disclosed herein. The following claims define certain combinations and subcombinations that are regarded as novel and non-obvious. Other combinations and subcombinations of features, functions, elements and/or properties may be claimed through amendment of the present claims or presentation of new claims in this or a related application. Such claims, whether they are broader, narrower or equal in scope to the original claims, are also regarded as included within the subject matter of applicants' invention.

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WE CLAIM

- 1 A children's ride-on vehicle, comprising
a frame,
a plurality of wheels, including at least one driven wheel adapted to be rotationally driven by a drive assembly and at least one steerable wheel adapted to be selectively steered by a child operating the vehicle;
a steering assembly including a steering mechanism coupled to the at least one steerable wheel, wherein the steering mechanism includes a region adapted to be grasped by a child operating the vehicle to steer the vehicle;
a drive assembly having a motor assembly adapted to drive the at least one driven wheel and a battery assembly adapted to power the motor assembly; and
a switch assembly including a user-manipulable portion mounted on the steering assembly at least proximate the one region adapted to be grasped by a child operating the vehicle, wherein the drive assembly has a first configuration adapted to drive the vehicle at a first selected speed, and upon actuation of the switch assembly the drive assembly is configured to a second configuration adapted to drive the vehicle at a second selected speed that is greater than the first selected speed.
- 2 The vehicle of claim 1, wherein the switch assembly includes a biasing mechanism adapted to bias the user-manipulable portion toward an unactuated position in which the drive assembly is in the first configuration.
- 3 The vehicle of claim 1, wherein the motor assembly includes a pair of motors, wherein in the first configuration the pair of motors are connected to the battery assembly in series, and further wherein in the second configuration the pair of motors are connected to the battery assembly in parallel.
- 4 The vehicle of claim 1, wherein the steering mechanism includes a handlebar assembly

5 The vehicle of claim 4, wherein the at least one region adapted to be grasped by a child is a handgrip on the handlebar assembly, and further wherein the user-manipulable portion is mounted at least proximate the handgrip

6 The vehicle of claim 1, wherein the steering mechanism includes a steering wheel that includes the at least one region adapted to be grasped by a child.

7 The vehicle of claim 6, wherein the user-manipulable portion is mounted on the steering wheel.

8 A drive assembly for a children's ride-on vehicle, the drive assembly comprising

a motor assembly including at least one motor having a rotatable output shaft,

a battery assembly adapted to provide power to the motor assembly, wherein the battery assembly includes at least one battery;

a power switch having a first power configuration, in which an electrical circuit is completed between the motor assembly and the battery assembly, and a second power configuration, in which the electrical circuit is not completed, and

a speed switch having a first speed configuration, in which the drive assembly is configured to rotate the output shaft at a first speed, and a second speed configuration, in which the drive assembly is configured to rotate the output shaft at a second speed greater than the first speed configuration, wherein the speed switch includes a biasing mechanism adapted to bias the speed switch toward the first speed configuration.

9 The assembly of claim 8, wherein the motor assembly includes a pair of motors, wherein in the first speed configuration the speed switch connects the motors in series and in the second speed configuration the speed switch connects the motors in parallel

10 The assembly of claim 8, wherein the battery assembly includes a pair of batteries, wherein in the first speed configuration the speed switch connects the batteries in parallel and in the second speed configuration the speed switch connects the batteries in series.

11 The assembly of claim 8, further including a direction switch having a first direction configuration in which the drive assembly is adapted to rotate the output shaft in a first direction, and a second direction configuration in which the drive assembly is adapted to rotate the output shaft in a second direction opposite the first direction.

12 The assembly of claim 8 in combination with a children's ride-on vehicle having a frame having a seat adapted to receive a child, a plurality of wheels including at least one driven wheel and at least one steerable wheel, and a steering assembly coupled to the at least one steerable wheel

13 The assembly of claim 12, wherein the speed switch includes a user-manipulable portion adapted to be engaged by a child to selectively position the speed switch between the first and second speed configurations

14 The assembly of claim 13, wherein the steering assembly includes a steering mechanism having a region adapted to be grasped by a child to steer the vehicle.

15 The assembly of claim 14, wherein the user-manipulable portion is at least proximate the region adapted to be grasped by a child to steer the vehicle.

16 The assembly of claim 15, wherein the steering mechanism includes a handlebar

17 The assembly of claim 15, wherein the steering mechanism includes a steering wheel

WE CLAIM

- 1 A children's ride-on vehicle, comprising
 - a frame,
 - a plurality of wheels, including at least one driven wheel adapted to be rotationally driven by a drive assembly and at least one steerable wheel adapted to be selectively steered by a child,
 - a steering assembly including a steering mechanism coupled to the at least one steerable wheel, wherein the steering mechanism includes at least one region adapted to be grasped by the child to steer the at least one steerable wheel,
 - a drive assembly having a motor assembly adapted to drive the at least one driven wheel and a battery assembly adapted to power the motor assembly; and
 - a switch assembly including a user-manipulable portion mounted on the steering assembly adjacent the at least one region adapted to be grasped by the child, wherein the drive assembly has a first configuration adapted to drive the at least one driven wheel at a first selected speed, and upon actuation of the switch assembly the drive assembly is configured to a second configuration adapted to drive the at least one driven wheel at a second selected speed that is greater than the first selected speed
- 2 The vehicle of claim 1, wherein the switch assembly includes a biasing mechanism adapted to bias the user-manipulable portion toward an unactuated position in which the drive assembly is in the first configuration
- 3 The vehicle of claim 1, wherein the motor assembly includes a pair of motors, wherein in the first configuration the pair of motors are connected to the battery assembly in series, and further wherein in the second configuration the pair of motors are connected to the battery assembly in parallel
- 4 The vehicle of claim 1, wherein the steering mechanism includes a handlebar assembly

5 The vehicle of claim 4, wherein the at least one region adapted to be grasped by a child is a handgrip on the handlebar assembly, and further wherein the user-manipulable portion is mounted adjacent the handgrip

6 The vehicle of claim 4, wherein the at least one region adapted to be grasped by the child is a handgrip on the handlebar assembly, and further wherein the user-manipulable portion includes a push-button adapted for the child to actuate the switch assembly with a first hand while grasping the handgrip with the first hand

7 The vehicle of claim 1, wherein the steering mechanism includes a steering wheel that includes the at least one region adapted to be grasped by a child

8 The vehicle of claim 7, wherein the user-manipulable portion is mounted on the steering wheel

9 The vehicle of claim 7, wherein the user-manipulable portion includes a push-button adapted for the child to actuate the switch assembly with a first hand while grasping the steering wheel with the first hand

10 The vehicle of claim 1, wherein the user-manipulable portion is adapted for the child to actuate the switch assembly with a first hand while grasping the at least one region of the steering mechanism with the first hand

11 The vehicle of claim 10, wherein the user-manipulable portion includes a push-button

12 A drive assembly for a children's ride-on vehicle, the drive assembly comprising

a motor assembly including at least one motor having a rotatable output shaft,

a battery assembly adapted to provide power to the motor assembly, wherein the battery assembly includes at least one battery,

a power switch having a first power configuration, in which an electrical circuit is completed between the motor assembly and the battery assembly, and a second power configuration, in which the electrical circuit is not completed, and

a speed switch having a first speed configuration, in which the drive assembly is configured to rotate the rotatable output shaft at a first speed, and a second speed configuration, in which the drive assembly is configured to rotate the output shaft at a second speed greater than the first speed configuration, wherein the speed switch includes a biasing mechanism adapted to bias the speed switch toward the first speed configuration

13 The assembly of claim 12, wherein the motor assembly includes a pair of motors, wherein in the first speed configuration the speed switch connects the pair of motors in series and in the second speed configuration the speed switch connects the pair of motors in parallel

14 The assembly of claim 12, wherein the battery assembly includes a pair of batteries, wherein in the first speed configuration the speed switch connects the pair of batteries in parallel and in the second speed configuration the speed switch connects the pair of batteries in series

15 The assembly of claim 12, further including a direction switch having a first direction configuration in which the drive assembly is adapted to rotate the output shaft in a first direction, and a second direction configuration in which the drive assembly is adapted to rotate the output shaft in a second direction opposite the first direction

16 The assembly of claim 12 in combination with a children's ride-on vehicle having a frame having a seat adapted to receive a child, a plurality of wheels including at least one driven wheel and at least one steerable wheel, and a steering assembly coupled to the at least one steerable wheel

17 The assembly of claim 16, wherein the speed switch includes a user-manipulable portion adapted to be engaged by a child to selectively position the speed switch between the first and second speed configurations

18 The assembly of claim 17, wherein the steering assembly includes a steering mechanism having a region adapted to be grasped by a child to steer the vehicle

19 The assembly of claim 18, wherein the user-manipulable portion is at least proximate the region adapted to be grasped by a child to steer the vehicle

20 The assembly of claim 19, wherein the steering mechanism includes a handlebar

21 The assembly of claim 19, wherein the steering mechanism includes a steering wheel

22 The assembly of claim 18, wherein the user-manipulable portion is externally accessible and adapted for the child to actuate the switch assembly with a first hand while grasping the region of the steering mechanism with the first hand

23 The assembly of claim 22, wherein the steering mechanism includes a handlebar

24 The assembly of claim 22, wherein the steering mechanism includes a steering wheel

25 A children's ride-on vehicle, comprising
a frame,
a plurality of wheels, including at least one driven wheel adapted to be rotationally driven by a drive assembly and at least one steerable wheel adapted to be selectively steered by a child,
a steering assembly including a steering mechanism coupled to the at least one steerable wheel, wherein the steering mechanism includes at least one region adapted to be grasped by the child to steer the at least one steerable wheel,
a drive assembly having a motor assembly adapted to drive the at least one driven wheel and a battery assembly adapted to power the motor assembly,
a switch assembly including a user-manipulable portion mounted on the steering assembly at least proximate the at least one region adapted to be grasped by the child, wherein the drive assembly has a first configuration adapted to drive the at least one driven wheel at a first selected speed, and upon actuation of the switch assembly the drive assembly is configured to a second configuration adapted to drive the at least one driven wheel at a second selected speed that is greater than the first selected speed, and
a free-floating wheel coupled to the frame and rotatable about an axle, wherein the frame includes a track within which the axle travels, and further wherein the track defines upper and lower limits within which the at least one steerable wheel travels as external forces are imparted to the at least one steerable wheel

26 The vehicle of claim 25, wherein the user-manipulable portion is externally accessible and adapted for the child to actuate the switch assembly with a first hand while grasping the at least one region of the steering mechanism with the first hand

27 The vehicle of claim 25, wherein the motor assembly includes a pair of motors, wherein in the first configuration the pair of motors are connected to the battery assembly in series, and further wherein in the second configuration the pair of motors are connected to the battery assembly in parallel

3x

28 The vehicle of claim 25, wherein the steering mechanism includes a handlebar assembly

29 The vehicle of claim 28, wherein the at least one region adapted to be grasped by the child is a handgrip on the handlebar assembly, and further wherein the user-manipulable portion is mounted at least proximate the handgrip

30 The vehicle of claim 25, wherein the steering mechanism includes a steering wheel that includes the at least one region adapted to be grasped by the child

31 The vehicle of claim 30, wherein the user-manipulable portion is mounted on the steering wheel

32 The vehicle of claim 28, wherein the at least one region adapted to be grasped by the child is a handgrip on the handlebar assembly, and further wherein the user-manipulable portion is externally accessible and adapted for the child to actuate the switch assembly with a first hand while grasping the handgrip with the first hand

33 The vehicle of claim 25, wherein the user-manipulable portion is adjacent the at least one region adapted to be grasped by the child

34 The vehicle of claim 25, wherein the switch assembly includes a biasing mechanism adapted to bias the user-manipulable portion toward an unactuated position in which the drive assembly is in the first configuration

35

Abstract

A children's ride-on vehicle The ride-on includes a frame adapted to support a child, and a drive assembly with a battery-powered motor assembly The ride-on further includes one or more steerable wheel and one or more driven wheel

- 5 In some embodiments, the ride-on resembles a full-size motorcycle In some embodiments, the ride-on includes a free-floating wheel, which is unbiased and travels within a defined range of positions with respect to the ride-on's frame as external forces are imparted to the wheel In some embodiments, the ride-on includes a high-speed switch positioned for momentary high-speed travel of the vehicle

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PATENT COOPERATION TREATY

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KH

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To
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PCT

NOTIFICATION OF TRANSMITTAL OF INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of Mailing
(day/month/year)

11 FEB 2003

Applicant's or agent's file reference

MPW 3B8C

IMPORTANT NOTIFICATION

International application No

PCT/US01/28637

International filing date (day/month/year)

13 September 2001 (13 09 2001)

Priority date (day/month/year)

18 September 2000 (18 09 2000)

Applicant

MATTEL, INC

- 1 The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any established on the international application
- 2 A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices
- 3 Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices
- 4 REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301)

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide

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Form PCT/IPBA/416 (July 1992)

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference MPW 3B8C	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No PCT/US01/28637	International filing date (day/month/year) 13 September 2001 (13 09 2001)	Priority date (day/month/year) 18 September 2000 (18 09 2000)
International Patent Classification (IPC) or national classification and IPC IPC(7) A63H 17/16 B60K 1/00 and US Cl. 446/440 180/63 1 318/111		
Applicant MATTEL, INC		
1 This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36 2 This REPORT consists of a total of <u>5</u> sheets, including this cover sheet ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT) These annexes consist of a total of <u>3</u> sheets		
3 This report contains indications relating to the following items - I ☒ Basis of the report - II ☐ Priority - III ☐ Non-establishment of report with regard to novelty, inventive step and industrial applicability - IV ☐ Lack of unity of invention - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement - VI ☐ Certain documents cited - VII ☐ Certain defects in the international application - VIII ☐ Certain observations on the international application		
Date of submission of the demand 08 April 2002 (08 04 2002)	Date of completion of this report 31 January 2003 (31 01 2003)	
Name and mailing address of the IPEA/US Comptroller of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230	Authorized officer Dennis Banks Telephone No. 703 308-1148  Sheila Venev Paralegal Specialist Group 3700	

Form PCT/IPEA/409 (cover sheet) (July 1998)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No

PCT/US01/28637

I Basis of the report

1 With regard to the elements of the international application *

- ☐ the international application as originally filed
- ☒ the description
pages 1-12 as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____
- ☒ the claims
pages NONE, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages 13-18, filed with the letter of 28 August 2002 (28 08 2002)
- ☒ the drawings:
pages 1-4, as originally filed
pages NONE, filed with the demand
pages 5-6, filed with the letter of 28 August 2002 (28 08 2002)
- ☐ the sequence listing part of the description
pages NONE, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____

2 With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23 1(b))
- ☐ the language of publication of the international application (under Rule 48 3(b))
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55 2 and/or 55 3)

3 With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing

- ☐ contained in the international application in printed form
- ☐ filed together with the international application in computer readable form
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4 ☐ The amendments have resulted in the cancellation of

- ☐ the description, pages NONE
- ☐ the claims, Nos NONE
- ☐ the drawings, sheets/fig NONE

5 ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70 2(c)) **

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No
PCT/US01/28637

V Reasoned statement under Rule 66 2(a)(II) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement

1 STATEMENT

Novelty (N)	Claims <u>3 6-17 and 19-34</u>	YES
	Claims <u>1 2, 4-5 and 18</u>	NO
Inventive Step (IS)	Claims <u>8-17 and 22-34</u>	YES
	Claims <u>3, 6-7 and 19-21</u>	NO
Industrial Applicability (IA)	Claims <u>1 34</u>	YES
	Claims <u>NONE</u>	NO

2 CITATIONS AND EXPLANATIONS

Please See Continuation Sheet

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

V 2 Citations and Explanations

Claims 1, 2, 4, 5 and 18 lack novelty under PCT Article 33(2) as being anticipated by Harris. Harris discloses a children's ride on vehicle (fig. 1) comprising a frame and a seat (fig. 1), a plurality of wheels including at least one driven wheel (15), at least one steerable wheel (front wheel 11), a steering assembly (handle bar arrangement 13) including a steering mechanism coupled to the at least one steerable wheel (fig. 1) wherein the steering mechanism includes a region adapted to be grasped by a child operating the vehicle to steer the vehicle (hand grip 63), a drive assembly having a motor assembly (column 2, lines 43-46) and a battery assembly (column 2, lines 61-63), a switch assembly (37) including a user-manipulable portion mounted on the steering assembly at least proximate the region adapted to be grasped by the child (column 3, lines 56-59) wherein the drive assembly has a first and second configuration (column 3, lines 20-29) as claimed wherein the steering mechanism includes handle bars (13) and the region adapted to be grasped by a child is a handgrip (63) with user manipulable portion mounted adjacent the handgrip (col. 3, lines 56-59). Inasmuch as the device of Harris includes all of the structural elements of the claims it is inherently capable of all of the claimed functions.

Claim 3 lacks an inventive step under PCT Article 33(3) as being obvious over Harris in view of Strong. Harris discloses all of the elements of the claims but for having a pair of motors wherein the first and second configuration of the motors are connected to the battery assembly in series and parallel respectively. Strong provides a teaching for an electric motor control for series and parallel operation (figs. 1-2). Strong teaches (col. 2, lines 37-44) a pair of motors (11-12) wherein the first and second configurations of the motors are connected to the battery assembly in series and parallel respectively. It would not have involved an inventive step to incorporate the device of Harris with the teaching of Strong for the purpose of varying the speed of the vehicle.

Claim 6 lacks an inventive step under PCT Article 33(3) as being obvious over Harris in view of Kishi. Harris discloses all of the elements of the claims but for providing a steering mechanism including a steering wheel. Nor does Harris disclose a direction switch having a first and second configuration. Kishi teaches a children's ride on vehicle having a frame (10) and a steering mechanism including a steering wheel (handle 23). It would not have involved an inventive step to incorporate the teachings of Kishi with the device of Harris for the purpose of providing a more realistic vehicle for the child user.

Claim 7 lacks an inventive step under PCT Article 33(3) as being obvious over Harris in view of Kishi and Barrett. Harris discloses all of the elements of the claims but for providing a steering mechanism including a steering wheel with a user manipulable portion. Kishi teaches a children's ride on vehicle having a frame (10) and a steering mechanism including a steering wheel (handle 23). Barrett teaches the concept of including a user manipulable portion (col. 3, lines 59-66) on a steering wheel. It would not have involved an inventive step to incorporate the teachings of Kishi and Barrett with the device of Harris for the purpose of providing a more realistic vehicle for the child user and to enable the user to have easier access to the switching assembly.

Claims 19-21 lack an inventive step under PCT Article 33(3) as being obvious over Harris in view of Lenuhan. Harris discloses all of the elements of the claims including a user-manipulable portion (col. 3, lines 56-59) and a handgrip (63) on the handle bar assembly but does not disclose that the user-manipulable portion includes a push button. Lenuhan teaches a children's vehicle including a user-

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No
PCT/US01/28637

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Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

manipulable portion (fig 4) including a push button (86) which activates power (col 5 lines 11 14) It would not have involved an inventive step to incorporate a push button for the purpose of providing easier maneuvering for the child user

Claims 8-17, 22-34 meet the criteria set out in PCT Article 33(2)-(4) because the prior art does not teach or fairly suggest the specifics of the claimed subject matter

Reply to Written Opinion mailed on 14 August 2002 is hereby acknowledged however a positive International Preliminary Examination Report can not be issued since the application is not in condition to receive a positive International Preliminary Examination Report

NEW CITATIONS

US 3 842 928 A (KISHI) 22 October 1974 see figure 1 elements 10 23 and 25

US 5 845 724 A (BARRETT) 08 December 1998 see figure 1 col 3 lines 59-66

US 5 947 739 A (LENIHAN) 07 September 1999 see col 5 lines 11 14

selectively change the direction of revolution of the above components, and thereby change the direction of travel of ride-on 10

Unlike drive wheels 18 and 20, which are used to propel ride-on 10, or front wheel 16, which is oriented by steering mechanism 22 to steer the ride-on, rear wheel 24 just goes along for the ride. By this it is meant that wheel 24 is neither driven nor steerable. Instead, it is a free-spinning wheel that freely rotates and travels along a defined path as external forces are imparted upon it. By external forces, it is meant forces that originate from external ride-on 10 and which are imparted directly or indirectly to rear wheel 24. Examples of external forces are gravity and bumps or shocks caused by ride-on 10 traveling over uneven terrain. Wheel 24 may also be described as being free from internal vertical bias when within its defined range of positions because ride-on 10 does not include any spring, lever arm or other biasing mechanism to urge wheel 24 to a particular position. As such, wheel 24 is neither biased nor otherwise loaded to remain in a particular position or orientation with respect to the rest of ride-on 10. Wheel 24 may also be described as traveling or floating within a defined range of positions to adjust freely to changes in elevation in the surface over which ride-on 10 travels.

As shown in Figs 5 and 6, the portions of frame 12 which form the ride-on's "swing arms" 44 and 45 are in fact spaced-apart mounts 72 and 74 between which wheel 24 is rotatably mounted. Mounts 72 and 74 are fixed in place relative to the rest of frame 12, and includes regions 76 and 78 that form a track with vertical channels 80 and 82. As discussed subsequently, channels 80 and 82 cooperate with axle bearings 84 and 86 to define a race or vertical range through which wheel 24 may travel as external forces are applied to the wheel.

As perhaps best seen in Fig 5, wheel 24 includes a pair of bushings 88 and 90 that are inserted into a corresponding pair of receptacles 92 and 94, one on each side of wheel 24. As shown, the portions of bushings 88 and 90 which are inserted within the receptacles are generally hex-shaped. Receptacles 92 and 94 have a similar shape, thereby enabling wheel 24 to rotate as bushings 88 and 90 rotate. It should be understood that configurations other than the hex-shaped configuration shown in Fig 5 may be used.

An axle 100 passes through wheel 24 and bushings 88 and 90 to provide an axis about which wheel 24 may rotate. Axle 100 includes a pair of ends 102 and 104, which each are passed through a respective one of channels 80 and 82 and axle bearings 84 and 86. A pair of cap nuts or other suitable fasteners 106 and 108 are mounted on the ends of axle 100. Fasteners 106 and 108 secure the axle bearings, mounts, and wheel together with only a small amount of side-to-side play, while still allowing bushings 88 and 90, and thus wheel 24, to rotate on the axle.

As discussed, channels 80 and 82 define a vertical range of positions within which axle bearings 84 and 86 are free to travel. As shown, channels 80 and 82 each have an oval, or racetrack-shaped opening, through which a stem portion 110 and 112 of one of the axle bearings extends. While the stem portions extend through the bearings, the head portions 114 and 116 of each axle bearing slide up and down the track defined by regions 76 and 78. Movement of axle bearings 84 and 86 up and down in response to uneven terrain is limited by top 118 and bottom 120 limits of channels 80 and 82, which are indicated in Fig. 6.

From a nominal position on level terrain, wheel 24 can move up approximately 0.4 inches and down approximately one inch. By varying the length of the channels or size of the axle bearings, it is possible to define a range of positions which is larger or smaller than this range. For most ride-ons, it is expected that a range of between approximately one inch and approximately three inches will be sufficient. It should be understood, however, that the most suitable range of positions will tend to vary depending upon such factors as the size of the ride-on, the surface upon which it is intended for use, and the distance between the ride-on's drive wheels and free-floating wheel. Therefore ranges outside of those recited above are possible and within the scope of the present invention.

In Fig. 7, ride-on 10 is shown traveling over a straight surface 122. By this it is meant that the surface on which ride-on 10 travels is planar. As shown, surface 122 is level, however it could also be inclined at an angle. In Fig. 7 it can be seen that each of the ride-on's wheels are in contact with surface 122. The position of rear wheel 24 shown in Fig. 7 will be referred to herein as a neutral or intermediate position, since wheel 24 can travel upward and downward from this position, as discussed below. In Fig. 7, the position of axle 100 is generally indicated with a line

WE CLAIM

1 A children's ride-on vehicle, comprising
a frame,
a plurality of wheels, including at least one driven wheel adapted to be rotationally driven by a drive assembly and at least one steerable wheel adapted to be selectively steered by a child,

a steering assembly including a steering mechanism coupled to the at least one steerable wheel, wherein the steering mechanism includes at least one region adapted to be grasped by the child to steer the at least one steerable wheel,

a drive assembly having a motor assembly adapted to drive the at least one driven wheel and a battery assembly adapted to power the motor assembly, and

a switch assembly including a user-manipulable portion mounted on the steering assembly adjacent the at least one region adapted to be grasped by the child, wherein the drive assembly has a first configuration adapted to drive the at least one driven wheel at a first selected speed, and upon actuation of the switch assembly the drive assembly is configured to a second configuration adapted to drive the at least one driven wheel at a second selected speed that is greater than the first selected speed

2 The vehicle of claim 1, wherein the switch assembly includes a biasing mechanism adapted to bias the user-manipulable portion toward an unactuated position in which the drive assembly is in the first configuration

3 The vehicle of claim 1, wherein the motor assembly includes a pair of motors, wherein in the first configuration the pair of motors are connected to the battery assembly in series, and further wherein in the second configuration the pair of motors are connected to the battery assembly in parallel

4 The vehicle of claim 1, wherein the steering mechanism includes a handlebar assembly

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5 The vehicle of claim 4, wherein the at least one region adapted to be grasped by a child is a handgrip on the handlebar assembly, and further wherein the user-manipulable portion is mounted adjacent the handgrip

6 The vehicle of claim 4, wherein the at least one region adapted to be grasped by the child is a handgrip on the handlebar assembly, and further wherein the user-manipulable portion includes a push-button adapted for the child to actuate the switch assembly with a first hand while grasping the handgrip with the first hand

7 The vehicle of claim 1, wherein the steering mechanism includes a steering wheel that includes the at least one region adapted to be grasped by a child

8 The vehicle of claim 7, wherein the user-manipulable portion is mounted on the steering wheel

9 The vehicle of claim 7, wherein the user-manipulable portion includes a push-button adapted for the child to actuate the switch assembly with a first hand while grasping the steering wheel with the first hand

10 The vehicle of claim 1, wherein the user-manipulable portion is adapted for the child to actuate the switch assembly with a first hand while grasping the at least one region of the steering mechanism with the first hand

11 The vehicle of claim 10, wherein the user-manipulable portion includes a push-button

12 A drive assembly for a children's ride-on vehicle, the drive assembly comprising

a motor assembly including at least one motor having a rotatable output shaft,

a battery assembly adapted to provide power to the motor assembly, wherein the battery assembly includes at least one battery,

a power switch having a first power configuration, in which an electrical circuit is completed between the motor assembly and the battery assembly, and a second power configuration, in which the electrical circuit is not completed, and

a speed switch having a first speed configuration, in which the drive assembly is configured to rotate the rotatable output shaft at a first speed, and a second speed configuration, in which the drive assembly is configured to rotate the output shaft at a second speed greater than the first speed configuration, wherein the speed switch includes a biasing mechanism adapted to bias the speed switch toward the first speed configuration

13 The assembly of claim 12, wherein the motor assembly includes a pair of motors, wherein in the first speed configuration the speed switch connects the pair of motors in series and in the second speed configuration the speed switch connects the pair of motors in parallel

14 The assembly of claim 12, wherein the battery assembly includes a pair of batteries, wherein in the first speed configuration the speed switch connects the pair of batteries in parallel and in the second speed configuration the speed switch connects the pair of batteries in series

15 The assembly of claim 12, further including a direction switch having a first direction configuration in which the drive assembly is adapted to rotate the output shaft in a first direction, and a second direction configuration in which the drive assembly is adapted to rotate the output shaft in a second direction opposite the first direction

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16 The assembly of claim 12 in combination with a children's ride-on vehicle having a frame having a seat adapted to receive a child, a plurality of wheels including at least one driven wheel and at least one steerable wheel, and a steering assembly coupled to the at least one steerable wheel

17 The assembly of claim 16, wherein the speed switch includes a user-manipulable portion adapted to be engaged by a child to selectively position the speed switch between the first and second speed configurations

18 The assembly of claim 17, wherein the steering assembly includes a steering mechanism having a region adapted to be grasped by a child to steer the vehicle

19 The assembly of claim 18, wherein the user-manipulable portion is at least proximate the region adapted to be grasped by a child to steer the vehicle

20 The assembly of claim 19, wherein the steering mechanism includes a handlebar

21 The assembly of claim 19, wherein the steering mechanism includes a steering wheel

22 The assembly of claim 18, wherein the user-manipulable portion is externally accessible and adapted for the child to actuate the switch assembly with a first hand while grasping the region of the steering mechanism with the first hand

23 The assembly of claim 22, wherein the steering mechanism includes a handlebar

24 The assembly of claim 22, wherein the steering mechanism includes a steering wheel

25 A children's ride-on vehicle, comprising
a frame,

a plurality of wheels, including at least one driven wheel adapted to be rotationally driven by a drive assembly and at least one steerable wheel adapted to be selectively steered by a child,

a steering assembly including a steering mechanism coupled to the at least one steerable wheel, wherein the steering mechanism includes at least one region adapted to be grasped by the child to steer the at least one steerable wheel,

a drive assembly having a motor assembly adapted to drive the at least one driven wheel and a battery assembly adapted to power the motor assembly,

a switch assembly including a user-manipulable portion mounted on the steering assembly at least proximate the at least one region adapted to be grasped by the child, wherein the drive assembly has a first configuration adapted to drive the at least one driven wheel at a first selected speed, and upon actuation of the switch assembly the drive assembly is configured to a second configuration adapted to drive the at least one driven wheel at a second selected speed that is greater than the first selected speed, and

a free-floating wheel coupled to the frame and rotatable about an axle, wherein the frame includes a track within which the axle travels, and further wherein the track defines upper and lower limits within which the at least one steerable wheel travels as external forces are imparted to the at least one steerable wheel

26 The vehicle of claim 25, wherein the user-manipulable portion is externally accessible and adapted for the child to actuate the switch assembly with a first hand while grasping the at least one region of the steering mechanism with the first hand

27 The vehicle of claim 25, wherein the motor assembly includes a pair of motors, wherein in the first configuration the pair of motors are connected to the battery assembly in series, and further wherein in the second configuration the pair of motors are connected to the battery assembly in parallel

28 The vehicle of claim 25, wherein the steering mechanism includes a handlebar assembly

29 The vehicle of claim 28, wherein the at least one region adapted to be grasped by the child is a handgrip on the handlebar assembly, and further wherein the user-manipulable portion is mounted at least proximate the handgrip

30 The vehicle of claim 25, wherein the steering mechanism includes a steering wheel that includes the at least one region adapted to be grasped by the child

31 The vehicle of claim 30, wherein the user-manipulable portion is mounted on the steering wheel

32 The vehicle of claim 28, wherein the at least one region adapted to be grasped by the child is a handgrip on the handlebar assembly, and further wherein the user-manipulable portion is externally accessible and adapted for the child to actuate the switch assembly with a first hand while grasping the handgrip with the first hand

33 The vehicle of claim 25, wherein the user-manipulable portion is adjacent the at least one region adapted to be grasped by the child

34 The vehicle of claim 25, wherein the switch assembly includes a biasing mechanism adapted to bias the user-manipulable portion toward an unactuated position in which the drive assembly is in the first configuration

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: DAVID S. D'ASCENZO
KOLISCH HARTWELL, DICKINSON
MCCORMACK & HEUSER, P.C.
590 S.W. YAMHILL STREET SUITE 200
PORTLAND, OR 97204

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference MPW sBc	Date of Mailing (day/month/year) 02 JAN 2002
International application No. PCT/US01/98887	International filing date (day/month/year) 18 SEPTEMBER 2001
Applicant Mattal Inc	

1 ☒ The applicant is hereby notified that the international search report has been established and is transmitted herewith

Filing of amendments and statement under Article 19:
 The applicant is entitled if he so wishes to amend the claims of the international application (see Rule 48):

When? The time limit for filing such amendments is normally 8 months from the date of transmittal of the international search report however for more details see the notes on the accompanying sheet

Where? Directly to the International Bureau of WIPO
 34, chemin des Colombettes
 1211 Geneva 20, Switzerland
 Facsimile No. (+1-26) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2 ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith

3 ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices

☐ no decision has been made yet on the protest: the applicant will be notified as soon as a decision is made

4. Further action(s): The applicant is reminded of the following:

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication a notice of withdrawal of the international application or of the priority claim must reach the International Bureau as provided in rules 20 bis 1 and 20 bis 5 respectively before the completion of the technical preparations for international publication

Within 19 months from the priority date a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within 20 months from the priority date the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II

Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20531 Facsimile No. (703) 505-9250	Authorized officer: Stephen Marcus D. NEAL MUIR Special Program Examiner Group 710 & 3720 Telephone No. (703) 505-1908
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Form PCT/ISA/290 (July 1998)*

(See notes on accompanying sheet)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference MPW sBcC	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below	
International application No PCT/US01/22237	International filing date (day/month/year) 13 SEPTEMBER 2001	(Earliest) Priority Date (day/month/year) 18 SEPTEMBER 2000
Applicant Mattel Inc		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 26.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing.

☐ contained in the international application in written form

☐ filed together with the international application in computer readable form

☐ furnished subsequently to this Authority in written form

☐ furnished subsequently to this Authority in computer readable form

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☐ the text is approved as submitted by the applicant

☒ the text has been established, according to Rule 26.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. 10

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure

☐ because this figure better characterizes the invention

☐ None of the figures.

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

The technical features mentioned in the abstract do not include a reference sign between parentheses (PCT Rule 8 1(d))

NEW ABSTRACT

Ride-on vehicle (10/210) includes frame (12) adapted to support a child and a drive assembly with a battery powered motor assembly. The ride-on further includes one or more steerable wheels (16) and one or more driven wheels (20). In some embodiments, the ride-on resembles a full-size motorcycle. In some embodiments, the ride-on includes a free-floating wheel (24), which is unbiased and travels up and down within a defined range of positions with respect to the ride-on's frame as external forces are imparted to the wheel. In some embodiments, the ride-on's frame includes a high-speed switch (214/216) for momentary high-speed travel of the vehicle.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US01/28637

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) A63H 17/16; B60K 1/00

US CL 446/440; 180/65.1 818/111

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. 446/491 440 180/65.1 65.6 65.8 69.6, 81.5 916, 909 81 908 818/111 112 115 280/288 280

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable search terms used)

EAST electric motor series and parallel all terrain vehicle child or children toy or 446(class)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document with indication where appropriate of the relevant passages	Relevant to claim No.
X	US 4,558,263 A (HARRIS et al) 10 December 1985, see entire document	1,2,4,5,8,12-16
Y		3,6,7,9-11 ,17
Y	US 3,732,671 A (ALLEN et al) 15 May 1973, steering wheel 30	6,7,17
Y	US 2,419,178 A (STRONG) 15 April 1947, Col 2, lines 37-44	3,9,10



Further documents are listed in the continuation of Box C.



See patent family annex

Special categories of cited documents:		
A document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
B earlier document published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed	"Z"	document member of the same patent family

Date of the actual completion of the international search

31 NOVEMBER 2001

Date of mailing of the international search report

02 JAN 2002

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington D.C. 20531

Facsimile No. (703) 306-5250

Authorized officer

D NEAL MUIR

Telephone No.

S. Oppenheimer Marcus
Special Program Examiner
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PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: DAVID S. D'ASCENZO
KOLISCH HARTWELL, DICKINSON
MCCORMACK & HEUSER P.C.
550 S.W. YAMHILL STREET SUITE 200
PORTLAND, OR 97204

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference MPW 380C	Date of Mailing (day/month/year) 02 JAN 2002
International application No. PCT/US01/28897	International filing date (day/month/year) 18 SEPTEMBER 2001
Applicant Mattel Inc	

1 ☒ The applicant is hereby notified that the international search report has been established and is transmitted herewith
 Filing of amendments and statement under Article 19:
 The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):
 When? The time limit for filing such amendments is normally 8 months from the date of transmittal of the international search report; however, for more details see the notes on the accompanying sheet
 Where? Directly to the International Bureau of WIPO
 84, chemin des Colombettes
 1211 Geneva 20, Switzerland
 Facsimile No. (41-22) 740.14.55
 For more detailed instructions, see the notes on the accompanying sheet.

2 ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith

3 ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.8 the applicant is notified that:
 ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices
 ☐ no decision has been made yet on the protest: the applicant will be notified as soon as a decision is made

4. Further action(s): The applicant is reminded of the following:
 Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application or of the priority claim must reach the International Bureau as provided in rules 90 bis 1 and 90 bis 3 respectively before the completion of the technical preparations for international publication.
 Within 19 months from the priority date a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).
 Within 20 months from the priority date the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box 907 Washington, D.C. 20541 Facsimile No. (703) 805-8830	Authorized officer: Stephen Marcus D. NEAL MORA Special Program Examining Group 3710 & 3720 Telephone No. (703) 805-1806
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference MPW sB&C	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable item 5 below	
International application No PCT/US01/28887	International filing date (day/month/year) 13 SEPTEMBER 2001	(Earliest) Priority Date (day/month/year) 18 SEPTEMBER 2000
Applicant Mattel Inc		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 28 1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing.

☐ contained in the international application in written form

☐ filed together with the international application in computer readable form

☐ furnished subsequently to this Authority in written form

☐ furnished subsequently to this Authority in computer readable form

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title

☒ the text is approved as submitted by the applicant

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 28 2(b), by this Authority as it appears in Box III. The applicant may within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. 10

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure

☐ because this figure better characterizes the invention

☐ None of the figures

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

The technical features mentioned in the abstract do not include a reference sign between parentheses (PCT Rule 8 1(d))

NEW ABSTRACT

Ride-on vehicle (10/210) includes frame (12) adapted to support a child and a drive assembly with a battery powered motor assembly. The ride-on further includes one or more steerable wheels (16) and one or more driven wheels (20). In some embodiments, the ride-on resembles a full-size motorcycle. In some embodiments, the ride-on includes a free-floating wheel (24), which is unbiased and travels up and down within a defined range of positions with respect to the ride-on's frame as external forces are imparted to the wheel. In some embodiments, the ride-on's frame includes a high-speed switch (214/216) for momentary high-speed travel of the vehicle.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US01/00037

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) .A65H 17/10; Book 1/00
US CL 440/440; 180/85 1 518/111

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

US 440/481 440 180/85 1 65.0 85.0 89.0, 91.0 91.0, 909 91 909 518/111 112 115 280/892 280

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and where practicable search terms used)

EAST electric motor series and parallel all terrain vehicle child or children toy or 440(class)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication where appropriate of the relevant passages	Relevant to claim No.
X — Y	US 4,558,263 A (HARRIS et al) 10 December 1985, see entire document	1,2,4,5,8,12-16 3,6,7,9-11, 17
Y	US 3,732,671 A (ALLEN et al) 15 May 1973, steering wheel 30	6,7,17
Y	US 2,419,178 A (STRONG) 15 April 1947, Col 2, lines 37-44	3,9,10



Further documents are listed in the continuation of Box C.



See parent family annex

Special categories of cited documents:		
A document defining the general state of the art which is not considered to be of particular relevance	T	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principles or theory underlying the invention
E earlier document published on or after the international filing date	X	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	Y	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
O document referring to an oral disclosure, use, exhibition or other means		
T document published prior to the international filing date but later than the priority date claimed	W	document member of the same patent family

Date of the actual completion of the international search

21 NOVEMBER 2001

Date of mailing of the international search report

02 JAN 2002

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

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D NEAL MUIR

Telephone No

Sophia Marcus

Special Program Examiner

Group 3710 & 3720

(703) 305-1808

VEHICULO MONTABLE PARA NIÑOS

CAMPO DE LA INVENCION

La invención se relaciona de manera general con vehículos montables para niños

ANTECEDENTES Y RESUMEN DE LA INVENCION

Los vehículos montables para niños se han vuelto recientemente populares debido en parte al deseo de los niños de manejar vehículos autopropulsados que se semejen a los vehículos de tamaño normal. Tales vehículos montables, o montables, son típicamente propulsados por motores potenciados con baterías y generalmente incluyen características a escala de los vehículos de tamaño normal.

Un reto al diseñar los vehículos a escala reducida es hacer que los vehículos se semejen a los vehículos de tamaño normal, mientras que proporcionen un vehículo que sea seguro para el uso por los niños. Cuando un montable se diseña para semejarse a un vehículo de 4 ruedas, tal como un carro o camión, el correspondiente montable tiende a tener también cuatro ruedas. Cuando un montable

se diseña para asemejarse a una motocicleta, sin embargo, se debe alcanzar un balance entre la seguridad y la precisión de la reproducción. Ciertamente la reproducción más precisa es para los montables que solo tienen dos ruedas. Sin embargo, los niños pueden no tener el tamaño, resistencia o coordinación para balancear un montable de dos ruedas, especialmente cuando se propulsa por el motor desmontable. Agregando ruedas adicionales al montable disminuye la precisión de la reproducción, y puede así reducir el deseo de los niños por el montable.

El montable inventado, o el vehículo montable, incluye una estructura adaptada para soportar un niño, y un montaje de propulsión con un montaje de motor potenciado por batería. El montable además incluye una o más ruedas gobernables, una o más ruedas propulsadas. En algunas modalidades, el montable se asemeja a una motocicleta de tamaño normal. En algunas modalidades, el montable incluye una rueda flotante libre, que no está presionada y baja dentro de un rango definido de posiciones con respecto a la estructura montable en la medida en que las fuerzas externas son impartidas a la rueda. En algunas modalidades, el montable incluye un interruptor de alta velocidad ubicado para operación de alta velocidad momentánea del vehículo.

BREVE DESCRIPCION DE LOS DIBUJOS

La figura 1 es una vista isométrica de un montable de niños construido de acuerdo con la presente invención, con una porción de la estructura del montable cortada para exponer una rueda de propulsión

La figura 2 es una vista en elevación lateral del montable de la figura 1

La figura 3 es una vista en sección transversal de una de las ruedas de propulsión mostradas en la figura 1

La figura 4 es una vista isométrica en explosión del cojinete y engranaje de la rueda mostrada en la figura 3

La figura 5 es una vista isométrica e explosión de la rueda posterior libre flotante mostrada en la figura 4

La figura 6 es una vista en sección transversal de la rueda de la figura 5

La figura 7 es una vista en elevación lateral fragmentaria de la porción posterior desmontable de la figura 4 sobre una superficie recta

La figura 8 es la vista en elevación lateral de la figura 7, con la rueda posterior elevada de la posición de la figura 7 para acomodar el viaje sobre una superficie no plana

La figura 9 es la vista en elevación lateral de la figura 7, con la rueda posterior descendida de la posición de la figura 7 para acomodar el viaje sobre otra superficie no plana

La figura 10 es una vista isométrica de otro vehículo montable para niños de acuerdo con la presente invención

La figura 11 es un diagrama de canalización esquemático

La figura 12 es una vista e planta de la parte superior mostrando otra modalidad del vehículo montable de acuerdo con la presente invención

DESCRIPCION DETALLADA DE LAS MODALIDADES PREFERIDAS Y
MEJOR MODO DE LA INVENCION

Un montable para niños construido de acuerdo con la presente invención se muestra en la figura 1 y se indica generalmente en 10. El montable 10 incluye una estructura, o cuerpo de vehículo, 12 con un asiento 14, una rueda delantera 16, ruedas delanteras 18 y 20, un mecanismo de gobierno 22, y una rueda posterior 24.

Como se muestra, el montable 10 generalmente se asemeja a una motocicleta a escala reducida, y más particularmente a una motocicleta Harley-Davidson® a escala reducida. Se debe entender que el montable 10 puede tener la forma o asemejarse a otras motocicletas y vehículos de dos ruedas. La estructura 12 típicamente se forma de partes de plástico moldeadas que son aseguradas juntas por tornillos u otros aseguradores adecuados. Como se muestra en la figura 2, la estructura 12 tiene la forma o se asemeja a componentes de una motocicleta convencional, incluyendo una luz de cabecera 26, para choques y puntales frontales 27 y 28, tableros de instrumento 30, tanque de gas 32, motor 34, plataforma 36, tubos de escape 38 y 40 (mostrado en la figura 1), bolsa de asiento 41, parachoques trasero 42, luces de

cola 43 y brazos oscilantes 44 y 45 (mostrado en la figura 5) La estructura 12 también cubre el montaje de motor potenciado eléctricamente del vehículo, el montaje de batería, y las interconexiones eléctricas y mecánicas (no mostradas) Se debe entender que el motor y los montajes de batería cada uno pueden incluir uno más motores o baterías, respectivamente Se debe entender que la forma de la configuración de la estructura variará dependiendo de modelo particular de estilo de la motocicleta para la cual el montable 10 este diseñada a asemejarse

Está dentro del alcance de la presente invención que el montable pueda asemejarse a otros tipos de vehículos de tamaño normal, tales como carros, camiones, vehículos camperos, equipo de construcción, aeronaves, motonaves y similares Similarmente, el montable puede tener una forma o configuración de cuerpo única que este diseñada para atraer a los niños y que no necesariamente se asemeje a una versión a escala reducida de un vehículo de tamaño normal convencional

En la modalidad desmontable mostrad en las figuras 1 y 2, se puede ver que en las ruedas de propulsión 18 y 20 están sustancialmente guardadas dentro de las

porciones de la estructura 12 que forman los tubos de escape 38 y 40. Por "rueda de propulsión" o "rueda propulsada" se significa que la salida rotacional del montaje del motor del montable propulsa la rotación de la rueda alrededor, o con, su eje u otro montante. Esto se compara con una rueda no propulsada, que rota en la dirección del movimiento del montable, pero no está directamente acoplada a la salida rotacional del montaje del motor del montable.

En razón a que las ruedas de propulsión (también denominadas como propulsadas) están sustancialmente ocultas de la vista, el montable 10 da la apariencia de una motocicleta de dos ruedas, aunque este tiene al menos tres ruedas que soportan la estructura en una posición de operación estable. De hecho, en la figura 1 se puede ver que la porción de la estructura que forma el tubo de escape 38 tiene un corte para revelar la rueda de propulsión 18. Similarmente, la rueda de propulsión 20 está casi completamente oculta de la vista por "un tubo de escape" 40. En la figura 2, se puede ver que la porción inferior del tubo de escape 38 se remueve para proporcionar claridad adicional para la rueda de propulsión 18. Esta dentro del alcance de la presente invención que los tubos de escape puedan tener menos de

sus porciones inferiores removidas, tales como en líneas punteadas en la figura 2. Adicionalmente, aunque un par de ruedas propulsadas son mostradas en las figuras 1 y 2, está dentro del alcance de la invención que más o menos ruedas propulsadas puedan ser utilizadas, bien sean solas o en combinación con una o más ruedas no propulsadas adicionales.

En razón a que los vehículos montables son a menudo utilizados por niños jóvenes que pudieran no tener resistencia, tamaño y/o coordinación para balancear un vehículo de dos ruedas, el montable 10 suministra al menos tres soportes separados que estabilizan el montable. Más específicamente, la rueda frontal 16 y las ruedas de propulsión 18 y 20 forman un triciclo. Sin embargo, al ocultar las ruedas de propulsión dentro de la estructura, el montable 10 le posibilita al niño sentir y parecer como si montara una motocicleta de dos ruedas.

En la figura 3, la interconexión entre la rueda de propulsión 20 y el montaje del motor del montable se muestra. Se debe entender que la rueda de propulsión 18 se acopla al montaje de motor con un conjunto similar de interconexiones. Como se muestra, el eje 46 se extiende a través de la rueda 20, que incluye un nicho exterior 48.

dentro el cual se asienta el buje del eje 50. El eje 46 pasa a través del buje 50, y la rueda 20 se retiene sobre el eje mediante una tuerca tapa 52 u otro asegurador adecuado. La rueda 20 incluye una cara interior 54 que incluye un nicho 56 dentro del cual se recibe un cojinete de rueda 58. El cojinete 58 está rotablemente montado sobre el eje 46 e incluye costillas exteriores plurales 60 que se extiende radialmente hacia el exterior de eje 46. Las costillas exteriores 60 se reciben dentro de canales correspondientes 62 en el nicho 56. Una vez sentadas allí, las ruedas 20 rotan cuando el cojinete 58 es rotado alrededor, o con, el eje 46.

El cojinete de la ruedas 58 es rotado por el engranaje 64, el cual es impulsado por el montaje del motor del montable (no mostrado) a través de cualquier interconexión mecánica adecuada, como se muestra en la técnica. El engranaje 56 está sentado sobre el eje 46 e incluye dientes plurales 66 que se extienden dentro de cavidades 68 formadas por costillas internas 70 dentro de cojinetes 58. Cerrando un circuito eléctrico entre el montaje de batería del montable y su montaje de motor se imparte una velocidad angular al engranaje 64, que a su vez dirige la rotación del cojinete 58. La rueda de impulsión 20 por el acople del diente 66 y las costillas

internas 70 En razón a que el cojinete 58 está inter asegurado con la rueda de impulsión 20 La rotación del cojinete 58 también origina que la rueda 20 rote, propulsando de esta forma el montable en la dirección seleccionada

El circuito descrito anteriormente típicamente esta abierto y cerrado mediante un interruptor, que esta montado sobre la estructura en una posición en donde esta puede ser operada por el niño Ejemplos de interruptores adecuados son los pedales o una de las plataformas del montable 36, un interruptor regulador sobre el mecanismo de gobierno (es decir las barras de manejo) 22, o un interruptor sobre el tablero de instrumentos 30 Los controles del montable pueden incluir un interruptor de reversa 31 para posibilitarle al niño cambiar selectivamente la dirección de revolución de los componentes anteriores, y cambiar de esta forma la dirección de viaje del montable 10

A menos que la ruedas de impulsión 18 y 20, que son utilizadas para propulsar el montable 10, o la rueda frontal 16, que esta orientada por el mecanismo de gobierno 22 gobiernen el montable, la rueda posterior 24 solo continua para montar Por esto se quiere decir que

la rueda 24 no es propulsada ni gobernable En su lugar, es una rueda de giro libre que rota libremente y viaja a lo largo de una senda definida como en la medida en que las fuerzas externas se imparten sobre está Por fuerzas externas, se significa las fuerzas que se originan desde el montable externo 10 y las cuales son impartidas directamente o indirectamente a la rueda posterior 24 Ejemplos de fuerzas externas son la gravedad y las abolladuras o golpes originan que el montable 10 viaje sobre un terreno no plano La rueda 24 también puede ser descrita como libre de presiones verticales internas cuando esta dentro de su rango definido de posiciones por que el montable 10 no incluye ningún resorte, brazo de leva u otro mecanismo de presión para presionar la rueda 24 a una posición particular Como tal, la rueda 24 no es presionada

ni cargada de otra forma para permanecer en una posición particular u orientación con respecto al resto del montable 10 La rueda 24 también se puede describir como que viaja o flota dentro de un rasgo definido de posiciones para ajustarse libremente a los cambios en elevación de la superficie sobre la cual el montable 10 viaja

Como se muestra en las figuras 5 y 6, las porciones de la estructura 12 que forman los "brazos oscilantes" del montable 44 y 45 son de hecho montantes separados 72 y 74 entre los cuales la rueda 24 esta montada rotablemente. Los montantes 72 y 74 están fijos en lugar con relación al resto de la estructura 12, e incluye regiones 76 y 78 que forman una pista con canales verticales 80 y 82. Como se discute subsecuentemente, los canales 80 y 82 cooperan con los bujes del eje 84 y 86 para definir una carrera o rango vertical a través del cual la rueda 24 pueda viajar en la medida en que las fuerzas externas se aplican a la rueda.

Como quizás se ve mejor en la figura 5, la rueda 24 incluye un par de bujes 88 y 90 que son insertados dentro de un par correspondiente de receptáculos 92 y 94, uno a cada lado de la rueda 24. Como se muestra, las porciones de los bujes 88 y 90 que están insertados dentro de los receptáculos son generalmente de forma hexagonal. Los receptáculos 92 y 94 tienen una forma similar, posibilitando de esta manera que la rueda 24 rote en la medida en que el buje 88 y 90 rota. Se debe entender que las configuraciones diferentes a la configuración de forma hexagonal mostrada en la figura 5 se pueden utilizar.

Como el ángulo 100 pasa a través de la rueda 24 los bujes 88 y 90 suministran un eje alrededor del cual la rueda 24 puede rotar. El eje 100 incluye un par de extremos 102 y 104, los cuales pasan cada uno a través de uno respectivo de los canales 80 y 82 y los cojinetes del eje 84 y 86. Un par de ruedas de tuercas de tapa u otros aseguradores adecuados 106 y 108 están montados sobre los extremos del eje 100. Los aseguradores 106 y 108 aseguran los cojinetes del eje, montantes, y ruedas junto con solo una pequeña cantidad del juego lado a lado, mientras que aún se les permite a los bujes 88 y 90 y así a las ruedas 24 rotar sobre el eje.

Como se discutió, los canales 80 y 82 definen un ángulo vertical de posiciones dentro del cual los cojinetes del eje 84 y 86 son libres de viajar. Como se muestra, los canales 80 y 82 cada uno tienen una abertura en forma oval o de pista de carrera, a través del cual una porción de vástago 110 y 112 de uno de los cojinetes del eje se extiende. Mientras las funciones de vástago se extienden a través de los cojinetes, las porciones de cabecera 114 y 116 de cada cojinete de eje se deslizan hacia arriba y hacia debajo de la pista definida por las regiones 76 y 78. El movimiento de los cojinetes del eje

84 y 86 hacia arriba y hacia abajo en respuesta a un terreno no plano se limita por los límites superior 128 e inferior 120 de los canales 80 y 82, los cuales están indicados en la figura 6

De una posición nominal sobre terreno a nivel, la rueda 24 puede moverse hacia arriba a aproximadamente 0,4 pulgadas y hacia abajo aproximadamente 1 pulgada. Al variar la longitud de los canales o el tamaño de los cojinetes del eje, es posible definir un rango de posiciones que sean mayores o menores que este rango. Para la mayoría de los montables, se espera que un rango entre aproximadamente 1 pulgada y aproximadamente 3 pulgadas será suficiente. Se debe entender, sin embargo, que la mayoría de los rangos adecuados de las posiciones tenderán a variar dependiendo de tales factores como el tamaño del montable, la superficie sobre la cual se pretenda usar, y la distancia entre las ruedas de impulsión del montable y la rueda flotante libre. Por lo tanto los rangos por fuera de estos citados anteriormente son posibles y dentro del alcance de la presente invención.

En la figura 7, el montable 10 es mostrado dejando sobre una superficie recta 122. Por esto se significa que

la superficie sobre la cual viaja el montable 10 es plana. Como se muestra, la superficie 122 está a nivel, sin embargo podría también ser inclinada en ángulo. En la figura 7 se puede ver que cada una de las ruedas del montable están en contacto con la superficie 122. La superficie de la rueda posterior 24 mostrada en la figura 7 se denominará aquí como una posición neutrada o intermedia en razón a que la rueda 24 puede viajar hacia arriba y hacia debajo de esta posición, como se discute adelante. En la figura 7, la posición del eje 100 es finalmente indicada con una línea 124 que se extiende generalmente paralela a la superficie 122. En razón a que la rueda 24 está montada a la estructura 12 de tal forma que esta pueda girar libremente y viajar hacia arriba y hacia abajo en la medida en que se imparten fuerzas externas a la rueda, el contacto de fricción con la superficie 122 origina que la rueda rote en la medida en que el montable 10 viaja sobre la superficie 122. Esto origina que la rueda 24 rote en una dirección y con velocidad que corresponda con la velocidad y dirección del montable 10. Esto también hace que la rueda 24 parezca una rueda propulsada, aunque en realidad es una rueda libre flotante. En la figura 8, la superficie 122 no es plana. Específicamente, la porción 126 de la superficie 122 sobre la cual la rueda 24 está ubicada es

mayor que las porciones de la superficie sobre la cual el frente y las rueda de impulsión del montable 16, 18 y 20 están ubicadas. En razón a que la rueda 24 no está asegurada o presionada para permanecer en su posición neutra, los cojinetes del eje se ha elevado hacia arriba en sus regiones respectivas de la pista, levantando también de esta forma la rueda posterior 24 de su posición mostrada en la figura 7. Para comparación con la posición mostrada en la figura 7, la posición del eje 100 en esta posición elevada es generalmente indicada con la línea 128, y la cantidad en la cual la rueda 24 se ha elevado se puede ver por la distancia entre la línea 124 y 128.

En razón a que la rueda 24 es una rueda libre flotante y no una rueda fija, esta se puede deflechar de su posición habitual cuando esta encuentra una fuerza externa, tal como cuando el montable 10 encuentra la abolladura entre las porciones planas de la superficie 122. Esto le posibilita a las ruedas de impulsión 18 y 20 permanecer en contacto con la superficie 122. Se debe entender al mirar la figura 8 que si la rueda posterior 24 no fuera una rueda libre flotante, las diferencias en elevación entre las ruedas frontal y posterior 16 y 24 habrían resultado en ruedas de impulsión 18 y 20 estando

suspendidas por encima de la superficie 22. En razón a que estas ruedas son ruedas de impulsión del montable, el vehículo no sería capaz de continuar su senda hasta que el usuario u otra persona libere el montable de su posición estacada.

De otra parte, si la porción de superficie 122 está a una elevación inferior que las correspondientes porciones de la superficie sobre la cual la rueda frontal del montable viaja, entonces el vehículo también podría estacarse si la rueda 24 no fuera una rueda libre flotante. Alternativamente la rueda posterior 24 podría estar suspendida por encima de la superficie. Por ejemplo, en la figura 9, la superficie 122 incluye una depresión 130 sobre la cual la rueda 24 está ubicada. Una vez suspendida por encima de esta porción de la superficie, la ilusión del montable 10 de ser una motocicleta de dos ruedas se perdería en razón a que la rueda posterior se elevaría por encima de la superficie. Sin embargo, al permitirle a la rueda posterior 24 flotar dentro de la región 76 de la pista, la rueda viaja hacia abajo en la pista para permanecer en contacto con la superficie. La posición del eje 100 en la figura 9 se indica con una línea 130, y la distancia relativa entre

esta posición y la posición mostrada en la figura 7 se muestra entre las líneas 126 y 130

Además la ventaja de evitar que el montable se acúñe o atasque en una posición si las ruedas de impulsión pierden contacto con la superficie sobre la cual el montable esta viajando, la rueda posterior libre flotante 24 también da como resultado que la apariencia del montable sea más semejante a una motocicleta de dos ruedas real en razón a que la rueda permanece en contacto con la superficie de piso todo el tiempo. Ese contacto de fricción con la superficie origina que la rueda rote alrededor del eje, más similar a una rueda de no impulsión real de un vehículo. Por lo tanto, la rueda 24 girará en la dirección del movimiento del montable 10 y girará más rápido o más lento en la medida en que la velocidad del montable 10 se incrementa o disminuye. Adicionalmente, en razón a que los montantes 72 y 74 están configurados para asemejarse a un brazo oscilante de una motocicleta real, el movimiento hacia arriba hacia debajo de los cojinetes del eje 84 y 86 y rueda 24 en la medida en que el montable 10 viaja sobre un terreno no plano se semejan de manera cercana a la apariencia visual de una motocicleta real que viaja sobre un terreno no plano.

Otra modalidad de un montable de acuerdo con la presente invención es mostrada en la figura 10 en 210. De manera similar a los montables previamente descritos, el montable 210 generalmente se asemeja a una motocicleta. A menos que se especifique otra cosa, los elementos, sub-elementos y posibles variaciones discutidas anteriormente se pueden incluir con el montable 210. En la figura 10, se puede ver que el montable incluye una estructura, o cuerpo de vehículo

12 con un asiento 14 sobre el cual un niño que opera el montable se sienta, un mecanismo de gobierno 22, y una pluralidad de ruedas 16, 18, 20 y 24. El montaje 210 se puede formar con o sin la rueda libre flotante 24, y con ruedas de impulsión 18 y 20 con configuraciones diferentes a aquellas guardadas dentro de los tubos de escape 38 y 40. En la figura 10, el montable incluye un montaje de interruptor 212 que tiene un interruptor (mostrado en la figura 11 en 214) y una porción de usuario manipulable 216 sobre el mecanismo de gobierno 22 del montable. Como se muestra, el mecanismo de gobierno 22 toma la forma de un montaje de barra de manija en la forma de un par de barras de manija 218 que tiene regiones 220 adaptadas para recibir las manos del niño mientras que el montable está siendo operado. Las

regiones 220 también se pueden referir como a agarradores de mano en razón a que estas regiones están adaptadas para ser empuñadas por el niño que opera el montable para gobernar el montable. Se debe entender que el montaje de la barra de mano puede incluir una barra de mano simple con un par de agarramanos, opuestos al par de agarramanos mostrado en la figura 10.

Preferiblemente, la porción manipulable por el usuario 216 está ubicada para accionamiento por el niño sin requerir que las manos del niño se le muevan de las regiones 220. Por ejemplo, la porción 216 puede ser montada sobre la barra del montaje de barra de mano u otros mecanismos de gobierno adecuados al menos próximo a los agarramanos de tal forma que las manos del niño no necesitan ser removidas de los agarramanos para accionar la porción 216. Por "al menos próximo" se significa que la porción 216 esta sobre, adyacente, o de alguna otra forma ubicada suficientemente cerca de los agarramanos 220 de tal forma que las manos del niño puedan permanecer sobre los agarramanos, la rueda de gobierno u otra estructura adecuadamente utilizada para gobernar y controlar la dirección de el montable, sin perder control cuando el niño selecciona la operación de alta velocidad.

del montable al presionar con alguna otra forma accionar la porción 216

El montaje de interruptor 212 configura selectivamente

El montaje de impulsión del montable para presión de alta velocidad El interruptor 214 y la porción correspondiente 216 pueden tomar cualquier forma adecuada, tal como interruptores de palanca, miembros rotables, interruptores momentáneos, interruptores de columpio, botones de empuje, etc En algunas modalidades, los montajes de interruptor 212 se configuran para requerir presión constante del niño para que permanezca en la configuración de alta velocidad Por ejemplo, el montaje de interruptor puede incluir un mecanismo de presión tal como un resorte 222, que presiona el montaje de interruptor para regresar a la configuración de baja velocidad cuando la porción 216 es liberada por el niño Esto evita que el montable sea inadvertidamente operado en la configuración de alta velocidad En tal configuración el montable de interruptor 212 puede ser pensado para proporcionar un "interruptor turbo" que el niño que opera el montable puede utilizar para suministrar un "empuje" de potencia Más particularmente, cuando el montable está configurado para ser impulsado de

una dirección hacia delante y el niño presiona la porción 216, el montable viajará ahora a velocidad más alta que antes de que el botón fuera presionado

Un ejemplo de un diagrama de canales adecuado para el montable 210 se muestra en la figura 11. Similar a los montables previamente discutidos, el montable 210 incluye un montaje de impulsión 230 que incluye un montaje de motor 232 y un montaje de batería 234. El montaje de motor incluye uno o más motores, y el montaje de batería incluye una o más baterías. Por ejemplo, en la figura 11 el montaje de impulsión se muestra incluyendo un par de motores 236 y 238 potenciados por una batería sencilla 240. Se debe entender que el montaje de impulsión para los montables discutidos aquí pueden incluir dos motores potenciados por una batería sencilla o un par de baterías, alternativamente, puede incluir un motor simple potenciado por una o más baterías.

Aunque no se requiere, una ventaja de tener más de un motor, más de una batería, o ambos, es que la velocidad de operación del montable se puede variar al conectar selectivamente los motores o las baterías entre configuraciones en paralelo y en serie. Por ejemplo, un par de baterías de 6 voltios suministrará seis voltios a

un montaje de motor si esta conectado en paralelo, y 12 si esta conectado en series. Similarmente, un montaje de batería adaptado para suministrar 12 voltios a un montaje de motor que incluye un par de motores suministrar a 12 voltios a cada motor si los motores están conectados en paralelo, y 6 voltios a cada motor si los motores están conectados en serie.

También se muestra en la figura 11 interruptores 31, 214 y 242. El interruptor 31 es un interruptor de reversa que incluye una porción manipulable por el usuario 33 (mostrada en la figura 10) que le posibilita al usuario cambiar selectivamente la dirección en que el montable viaja al reversar la polaridad de la corriente del montaje de batería al montaje de motor. El interruptor 214, discutido anteriormente, es un interruptor "turbo" que origina selectivamente operación de alta velocidad del montable. El interruptor 242 es un interruptor de prendido/apagado que incluye una porción manipulable por el usuario 246 que es selectivamente accionada por el usuario para completar el circuito eléctrico entre el motor desmontable y los montajes de batería, originando de esta forma la operación de impulsión del montable. Un ejemplo ilustrativo de la porción adecuada 246 es un pedal de pie sobre uno de los tableros de recorrido del

montable tal como el mostrado en la figura 10. Un pedal de pie adecuado se describe en la patente estadounidense N 5,319,996, y se incorpora aquí como referencia. Otros ejemplos incluyen un agarrador rotatorio sobre las barras de mano del montable y botones de empuje, palancas cambiables o similares sobre el tablero de instrumentos del montable. En la figura 11, los interruptores 31 y 214 son mostrados como interruptores de doble polo doble empuje, aunque cualquier mecanismo de interruptor adecuado se puede utilizar. En la figura 11, se muestran los interruptores 214 y 242 como interruptores momentáneos que son respectivamente presionados, tal como con resortes, a las configuraciones de baja velocidad y apagado.

En el diagrama mostrado en la figura 11, se puede ver que el montaje de impulsión no permite la operación de alta velocidad del montable en la dirección de reversa. Esta característica de seguridad evita que el niño sea capaz de impulsar el vehículo en reserva a altas velocidades. En el diagrama mostrado, la potencia ya no se suministra al montaje de motor si la operación de reversa de alta velocidad se selecciona. Alternativamente, el equipo de alambrado se puede configurar para producir operaciones de reversa de baja

velocidad sin importar si la operación de reversa de alta o baja velocidad se selecciona por el niño. Un ejemplo de otro montaje de interruptor adecuado adaptado para precluir la operación de alta velocidad del montable en dirección de reversa se describe en la patente estadounidense N 5,644,114, que se incorpora aquí como referencia.

Se debe entender que el diagrama de alambrado mostrado en la figura 11 es con el propósito de ilustración y que otros diagramas de alambrado adecuados o equipos de alambrado, se pueden utilizar. Por ejemplo, el interruptor de reversa 31 se puede omitir para producir un montable que es impulsado por un montaje de motor 232 en solo una dirección. Como en otro ejemplo, la omisión del interruptor de velocidad 212 da como resultado un montable que es impulsado a una velocidad simple por un montaje de motor 232.

Se debe entender que el "interruptor de turbo" descrito anteriormente se puede utilizar sobre un montable que tiene configuraciones diferentes a las modalidades ilustradas mostradas en la figura 10. Por ejemplo, se puede utilizar sobre montables potenciados por batería que se semejan a otras formas de vehículos de

tamaño real, tales como carros, camiones, vehículos camperos, aeronaves, y similares, así como también montables potenciados por batería que tienen formas y diseños únicos. Adicionalmente, el montaje de interruptor 212 puede ser utilizado para otros tipos de mecanismo de gobierno, tales como las ruedas de gobierno, una barra de manija simple, y palancas de gobierno.

Por ejemplo, en la figura 12 se muestra un montable en 250 que incluye un mecanismo de gobierno 22 en la forma de una rueda de gobierno 252. Se debe entender que el montable 250 incluye cualquiera de los montajes de impulsión descritos anteriormente con respecto al montable 210. Como se muestra, la rueda 252 incluye una porción manipulable por el usuario 216 del montaje de interruptor "turbo" 212 ubicado para acople por un niño que mantiene la rueda de gobierno 252 y que tiene una porción agarrable por el usuario 254. Las porciones manipulables por el usuario adicionales 216 son mostradas en líneas punteadas en la figura 12 para indicar que el montable puede incluir mas de una porción manipulable por el usuario 216, tal como posibilitar un amplio rango de posiciones en la cual el niño pueda agarrar el mecanismo de gobierno 22 y accionar al menos una de las porciones

manipulables por el usuario sin remover las manos del niño del mecanismo de gobierno

Mientras que la invención se ha escrito en su forma preferida, las modalidades específicas de esta como se describen y se ilustran aquí no deben ser consideradas como en sentido limitante en razón a que numerosas variaciones son posibles. Los solicitantes consideran la materia objeto de su invención incluye todas las combinaciones novedosas y no obvias y subcombinaciones de varios elementos, características, funciones y/o propiedades descritas aquí. Las siguientes reivindicaciones que tienen ciertas combinaciones y subcombinaciones que son consideradas como novedosas y no obvias. Estas combinaciones y subcombinaciones de características, funciones, elementos y/o propiedades se pueden reivindicar a través de correcciones de las presentes reivindicaciones o presentación de nuevas reivindicaciones en esta o en una solicitud relacionada tales reivindicaciones, si ellas son más amplias, restringidas o iguales en el alcance de las reivindicaciones originales, también son consideradas como incluidas dentro de la materia objeto de la invención de los solicitantes.

REIVINDICACIONES

1 U vehículo montable de niños, que comprende una estructura,

una pluralidad de ruedas, que incluye al menos una rueda de impulsión adaptada para ser rotacionalmente impulsada mediante un montaje de impulsión y al menos una rueda de gobierno adaptada para ser selectivamente impulsada por un niño que opera el vehículo,

Un montaje de gobierno que incluye un mecanismo de gobierno acoplado al menos una rueda gobernable, en donde el mecanismo de gobierno incluye una región adaptada para ser agarrada por un niño que opera el vehículo para gobernar el vehículo,

Un montaje de impulsión que tiene un montaje de motor adaptado para impulsar al menos una rueda de impulsión y un montaje de batería adaptado para potenciar el montaje de motor, Y

Un montaje de interruptor que incluye una porción manipulable por el usuario montada sobre el montaje de gobierno al menos próxima a la región adaptada para ser agarrada por un niño que opera el vehículo donde el

montaje de impulsión tiene una primera configuración adaptada para impulsar el vehículo a una primer velocidad seleccionada, y bajo accionamiento del montaje de interruptor el montaje de impulsión se configura a una segunda configuración adaptada para impulsar el vehículo a una segunda velocidad seleccionada que es mayor que la primer velocidad seleccionada

2 El vehículo de la reivindicación 1, en donde el montaje de interruptor incluye un mecanismo de presión adaptado para presionar la porción manipulable por el usuario hacia una posición no accionada en la cual el montaje de impulsión está en la primera configuración

3 El vehículo de la reivindicación 1, en donde el montaje de motor incluye un par de motores, donde la primer configuración del par de motores esta conectado al montaje de batería en serie, y adicionalmente en donde en la segunda configuración el par de motores están conectados al montaje de batería en paralelo

4 El vehículo de la reivindicación 1, en donde el mecanismo de gobierno incluye un montaje de barra de mano

5 El vehículo de la reivindicación 4, en donde la al menos una región adaptada para ser agarrada por un niño es una agarradera de manos sobre el montaje de barra de mano, y además en donde la porción manipulable por el usuario esta montada al menos próxima a la agarradera de mano

6 El vehículo de la reivindicación 1, en donde el mecanismo de gobierno incluye una rueda de gobierno que incluye la al menos una región adaptada para ser agarrada por un niño

7 El vehículo de la reivindicación 6, en donde la porción manipulable por el usuario se monta sobre la rueda de gobierno

8 Un montaje de impulsión para un vehículo montable por niños, el montaje de impulsión comprende

un montaje de motor que incluye al menos un motor que tiene un eje de salida rotable,

un montaje de batería adaptado para suministrar potencia a montaje de motor, en donde el montaje de batería incluye al menos una batería,

un interruptor de potencia que tiene una primera configuración de potencia, en la cual se completa un circuito eléctrico entre el montaje de motor y el montaje de batería, y una segunda configuración de potencia, en la cual el circuito eléctrico no está completo, y

un interruptor de velocidad que tiene una primer configuración de velocidad, en la cual el montaje de impulsión esta configurado para rotar el eje de salida a una primer velocidad, y una segunda configuración de velocidad, en la cual el montaje de impulsión esta configurado para rotar en eje de salida a una segunda velocidad mayor que la primer configuración de velocidad, en donde el interruptor de velocidad incluye un mecanismo de presion adaptado para presionar el interruptor de velocidad hacia la primer configuración de velocidad

9 El montaje de la reivindicación 8, en donde el montaje de motor incluye un par de motores, en donde en la configuración de primer velocidad el interruptor de velocidad conecta los motores en serie y en la segunda configuración de velocidad el interruptor de velocidad conecta los motores en paralelo

10 El montaje de la reivindicación 8, en donde el montaje de batería incluye un par de baterías en donde en la primera configuración de velocidad el interruptor de velocidad conecta las baterías en paralelo y en la segunda configuración de velocidad el interruptor de velocidad conecta las baterías en serie

11 El montaje de la reivindicación 8, incluye además un interruptor de dirección que tiene una primera configuración de dirección en la cual el montaje de impulsión se adapta para rotar el eje de salida en una primera dirección, y una segunda configuración de dirección en la cual el montaje de impulsión se adapta para rotar el eje de salida en una segunda dirección opuesta a la primera dirección

12 El montaje de la reivindicación 8 en combinación con un vehículo montable para niños que tiene un asiento adaptado para recibir niños, una pluralidad de ruedas que incluyen al menos una rueda de impulsión y al menos una rueda gobernable, y un montaje de gobierno acoplado a al menos una rueda de gobierno

13 El montaje de la reivindicación 12, en donde el interruptor de velocidad incluye una porción manipulable

por el usuario adaptada para ser acoplada por un niño para ubicar selectivamente el interruptor de velocidad entre la primera y segunda configuraciones de velocidad

14 El montaje de la reivindicación 13, en donde el montaje de gobierno incluye un mecanismo de gobierno que tiene una región adaptada para ser agarrada por un niño para gobernar el vehículo

15 El montaje de la reivindicación 14, en donde la porción manipulable por el usuario es al menos próxima a la región adaptada para ser agarrada por un niño para gobernar el vehículo

16 El montaje de la reivindicación 15, en donde el mecanismo de gobierno incluye una barra de mano

17 El montaje de la reivindicación 15, en donde el mecanismo de gobierno incluye una rueda de gobierno

REIVINDICACIONES

1 Un vehículo montable de niños, que comprende
una estructura,
una pluralidad de ruedas, que incluye al menos una
rueda de impulsión adaptada para ser rotacionalmente
impulsada mediante un montaje de impulsión y al menos una
rueda gobernable adaptada para ser selectivamente
gobernada por un niño,

Un montaje de gobierno que incluye un mecanismo de
gobierno acoplado al menos una rueda gobernable, en donde
el mecanismo de gobierno incluye al menos una región
adaptada para ser agarrada por el niño para gobernar al
menos una rueda gobernable,

Un montaje de impulsión que tiene un montaje de
motor adaptado para impulsar al menos una rueda de
impulsión y un montaje de batería adaptado para potenciar
el montaje de motor, Y

Un montaje de interruptor que incluye una porción
manipulable por el usuario montada sobre el montaje de
gobierno adyacente a la al menos una región adaptada

para ser agarrada por el niño, en donde el montaje de impulsión tiene una primera configuración adaptada para impulsar la al menos una rueda de impulsión a una primera velocidad seleccionada, y al accionamiento del montaje de interruptor el montaje de impulsión se configura a una segunda configuración adaptada para impulsar al menos una rueda de impulsión a una segunda velocidad seleccionada que es mayor que la primer velocidad seleccionada

2 El vehículo de la reivindicación 1, en donde el montaje de interruptor incluye un mecanismo de presión adaptado para impulsar la porción manipulable por el usuario hacia una posición no accionada en la cual el montaje de impulsión está en la primer configuración

3 El vehículo de la reivindicación 1, en donde el montaje de motor incluye un par de motores, donde en la primer configuración del par de motores están conectados a un montaje de batería en serie, y adicionalmente en donde en la segunda configuración el par de motores están conectados al montaje de batería en paralelo

4 El vehículo de la reivindicación 1, en donde el mecanismo de gobierno incluye un montaje de barra de mano

5 El vehículo de la reivindicación 4, en donde la al menos una región adaptada para ser agarrada por un niño es una agarradera de mano sobre el montaje de barra de mano, y además en donde la porción manipulable por el usuario esta montada adyacente a la agarradera de mano

6 El vehículo de la reivindicación 4, en donde la al menos una región adaptada para ser agarrada por el niño es una agarradera de mano u otro montaje de barra de mano, y además en donde la porción manipulable por el usuario incluye un botón de presión adaptadora que el niño accione el montaje de interruptor con una primer mano mientras agarra la agarradera de mano con la primer mano

7 El vehículo de la reivindicación 1, en donde el mecanismo de gobierno incluye una rueda de gobierno que incluye la al menos una región adaptada para ser agarrada por un niño

8 El vehículo de la reivindicación 7, en donde la porción manipulable por el usuario está montada sobre la rueda de gobierno

9 El vehículo de la reivindicación 7, en donde la porción manipulable por el usuario incluye un botón de presión adaptado por el niño para accionar el montaje de interruptor con una primer mano mientras agarra la rueda de gobierno con la primer mano

10 El vehículo de la reivindicación 1 en donde la porción manipulable por el usuario esta adaptada para que el niño accione el montaje de interruptor con una primer mano mientras agarra la al menos una región del mecanismo de gobierno con la primer mano

11 El vehículo de la porción 10 en donde la porción manipulable por el usuario incluye un botón de presión

12 Un montaje de impulsión para un vehículo montable para niños, el montaje de impulsión comprende

Un montaje de motor que incluye al menos un motor que tiene un eje de salida rotatable,

Un montaje de batería adaptado para suministrar potencia al montaje de motor, en donde el montaje de batería incluye al menos una batería,

Un interruptor de potencia que tiene una primer configuración, en la cual se completa un circuito eléctrico entre el montaje de motor y el montaje de batería, y la segunda configuración de potencia, en la cual el circuito eléctrico no está completo, y

Un interruptor de velocidad que tiene una primer configuración de velocidad, en la cual el montaje de impulsión esta configurado para rotar el eje de salida rotatable como una primer velocidad, y una segunda configuración de velocidad, en la cual el montaje de impulsión esta configurado para rotar el eje de salida a una segunda velocidad mayor que la primer configuración de velocidad, en donde el interruptor de velocidad incluye un mecanismo de presión adaptado para presionar el interruptor de velocidad hacia la primer configuración de velocidad

13 El montaje de la reivindicación 12, en donde el montaje de motor incluye un par de motores, en donde en la primer configuración de velocidad el interruptor de velocidad conecta el par de motores en serie y en la segunda configuración de velocidad el interruptor de velocidad conecta el par de motores en paralelo

14 El montaje de la reivindicación 12, en donde el montaje de baterías incluye un par de baterías, en donde en la primer configuración de velocidad el interruptor de velocidad conecta el par de baterías en paralelo y en la segunda configuración de velocidad el interruptor de velocidad conecta el par de baterías en serie

15 El montaje de la reivindicación 12, e incluye además un interruptor de dirección que lleva una primer configuración de dirección en la cual el montaje de impulsión se adapta para rotar el eje de salida en una primer dirección, y una segunda configuración de dirección en la cual el montaje de impulsión se adapta para rotar el eje de salida en una segunda dirección opuesta a la primer dirección

16 El montaje de la reivindicación 12, en combinación con un vehículo montable para niños que tiene una estructura que tiene un asiento adaptado para recibir un niño, una pluralidad de ruedas que incluyen al menos una rueda de impulsión y al menos una rueda gobernable, y un montaje de gobierno acoplado a al menos una rueda gobernable

17 El montaje de la reivindicación 16, en donde el interruptor de velocidad incluye una porción manipulable por el usuario adaptada para ser acoplada para un niño para ubicar selectivamente el interruptor de velocidad entre la primera y segunda y configuraciones de velocidad

18 El montaje de la reivindicación 17, en donde el montaje de gobierno incluye un mecanismo de gobierno que tiene una región adaptada para ser agarrada por un niño para gobernar el vehículo

19 El montaje de la reivindicación 18, en donde la porción manipulable por el usuario es al menos próxima a la región adaptada para ser agarrada por un niño para gobernar el vehículo

20 El montaje de la reivindicación 19, en donde el mecanismo de gobierno incluye una barra de mano

21 El montaje de la reivindicación 19, en donde el mecanismo de gobierno incluye una rueda de gobierno

22 El montaje de la reivindicación 18, en donde la porción manipulable por el usuario es accesible externamente y adaptada para que el niño accione el

montaje de interruptor con una primer mano mientras agarra la región del mecanismo de gobierno con la primer mano

23 El montaje de la reivindicación 22, en donde el mecanismo de gobierno incluye una barra de mano

24 El montaje de la reivindicación 22, en donde el mecanismo de gobierno incluye una rueda de gobierno

25 Un vehículo montable para niños, que comprende una estructura,

una pluralidad de ruedas, que incluyen al menos una rueda de impulsión adaptada para ser rotacionalmente impulsada por un montaje de impulsión y al menos una rueda de gobierno adaptada para ser selectivamente gobernada por un niño,

un montaje de gobierno que incluye un mecanismo de gobierno acoplado a al menos una rueda de gobierno, gobernable, en donde el mecanismo de gobierno incluye al menos una región adecuada para ser agarrada por el niño para gobernar la al menos una rueda gobernable,

un montaje de impulsión que tiene un montaje de motor adaptado para impulsar la al menos una rueda de impulsión y una batería y un montaje de batería adaptado para potenciar el montaje de motor,

un montaje de interruptor que incluye una porción manipulable por el usuario montada sobre el montaje de gobierno al menos próxima a la al menos una región adaptada para ser agarrada por el niño, en donde el montaje de gobierno tiene una primer configuración adaptada para gobernar la al menos una rueda de impulsión a una primer velocidad seleccionada, y al accionamiento del montaje de interruptor el montaje de impulsión se configura a una segunda configuración adaptada para impulsarla al menos una rueda de impulsión a una segunda velocidad seleccionada que es mayor que la primer velocidad seleccionada,

una rueda de rotación libre acoplada a la estructura y rotable alrededor del eje en donde la estructura incluye una pista dentro de la cual el eje viaja, y además en donde la pista define el limite superior e inferior dentro del cual al menos una rueda gobernable viaja en la medida en que las fuerzas externas so impartidas a la al menos una rueda gobernable

26 El vehículo de la reivindicación 25, en donde la porción manipulable por el usuario es externamente accesible y adaptada para que el niño accione el montaje de interruptor con una primer manija mientras agarra al menos una región del mecanismo de gobierno con la primer mano

27 El vehículo de la reivindicación 25, en donde el montaje de motor incluye un par de motores, en donde la primer configuración del par de motores está conectada al montaje de batería en serie, y además en donde en la segunda configuración el par de motores están conectados al montaje de batería en paralelo

28 El vehículo de la reivindicación 25, en donde el mecanismo de gobierno incluye un montaje de barra de mano

29 El vehículo de la reivindicación 28, en donde la al menos una región adaptada para ser agarrada por el niño es una agarradera de mano sobre el montaje de barra de mano, y además en donde la porción manipulable por el usuario esta montada al menos próxima a la agarradera de mano

30 El vehículo de la reivindicación 25, en donde el mecanismo de gobierno incluye una rueda de gobierno que incluye al menos una región adaptada para ser agarrada por el niño

31 El vehículo de la reivindicación 30, en donde la porción manipulable por el usuario se monta sobre la rueda de gobierno

32 El vehículo de la reivindicación 28, en donde la al menos una región adaptada para ser agarrada por el niño es una agarradera de mano sobre el montaje de barra de mano, y además en donde la porción manipulable por el usuario es extremadamente accesible y adaptada para que el niño accione el montaje de interruptor con una primer mano mientras agarra la agarradera de mano con la primer mano

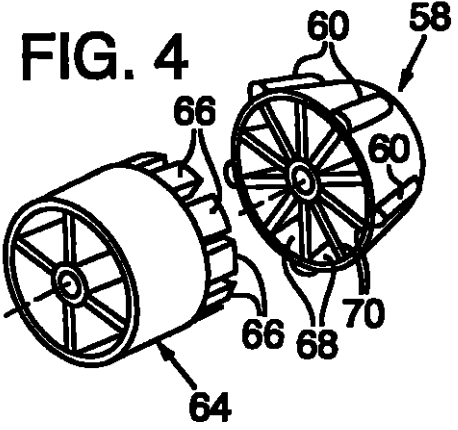
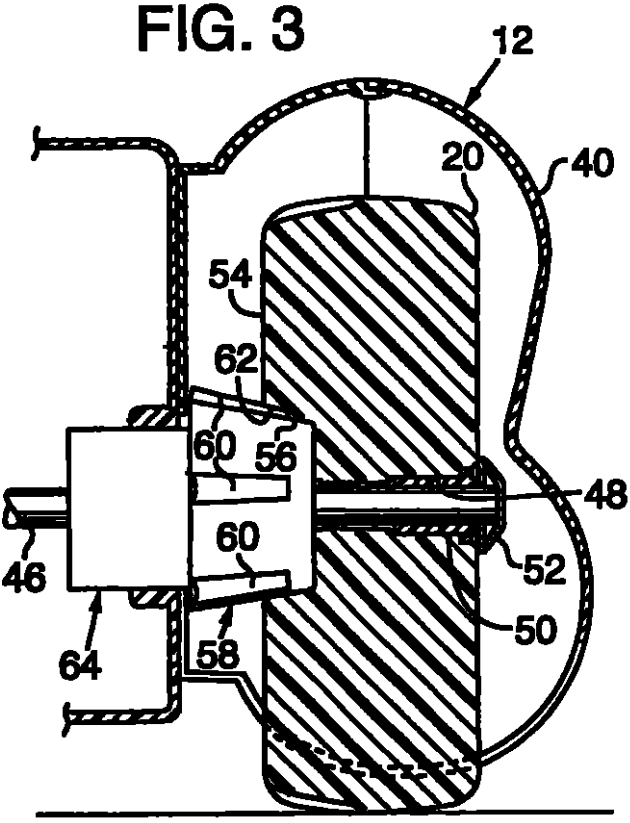
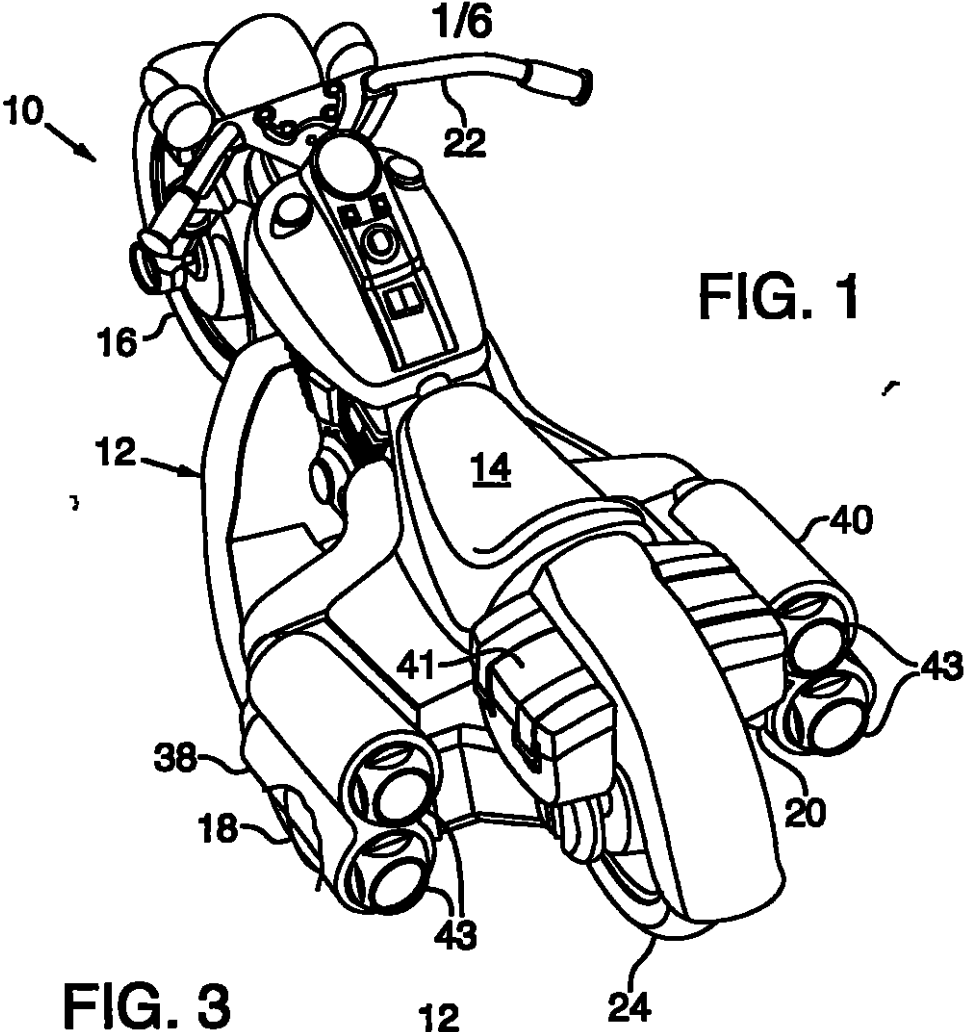
33 El vehículo de la reivindicación 25, en donde la porción manipulable por el usuario es adyacente al menos una región para ser agarrada por el niño

34 El vehículo de la reivindicación 25, en donde el montaje de interruptor incluye un mecanismo de presión

adaptado para presionar la porción manipulable por el usuario hacia una posición no accionada en la cual el montaje de impulsión esta en la primera configuración

RESUMEN

Un vehículo montable para niños El vehículo montable incluye una estructura adaptada para soportar un niño, y un montaje de impulsión con un montaje de motor potenciado por batería El montable incluye además una o más ruedas gobernables y una o más ruedas de impulsión En algunas modalidades, el montable se semeja a una motocicleta de tamaño normal En algunas modalidades, el montable incluye una rueda de frotación libre, la cual no está presionada y viaja dentro de un rango definido de posiciones con respecto a la estructura de los montables en la medida en que se imparten fuerzas externas a la rueda En algunas modalidades, el montable incluye un interruptor de alta velocidad ubicado para viaje de alta velocidad momentáneo del vehículo



105

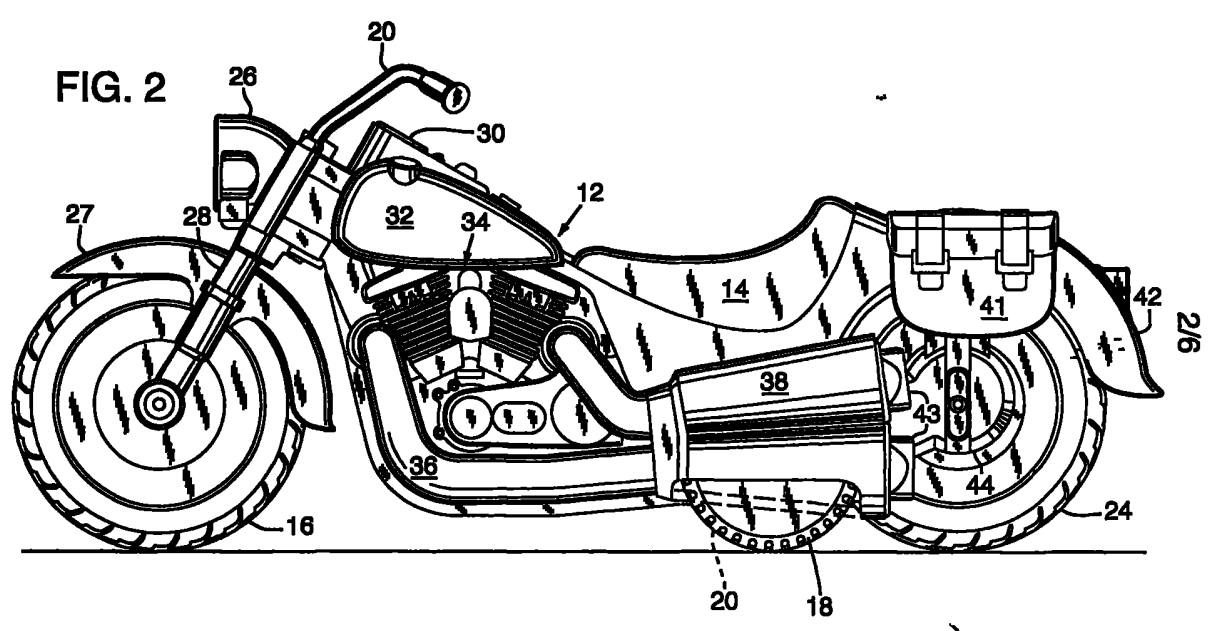


FIG. 5

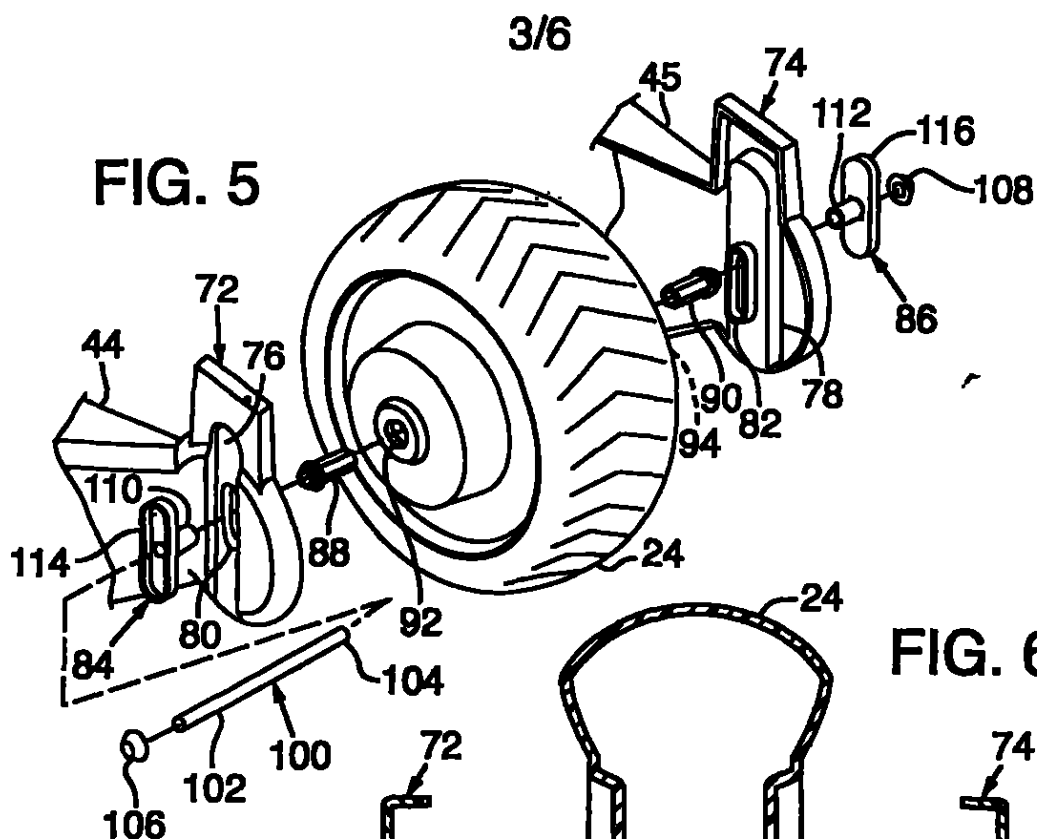
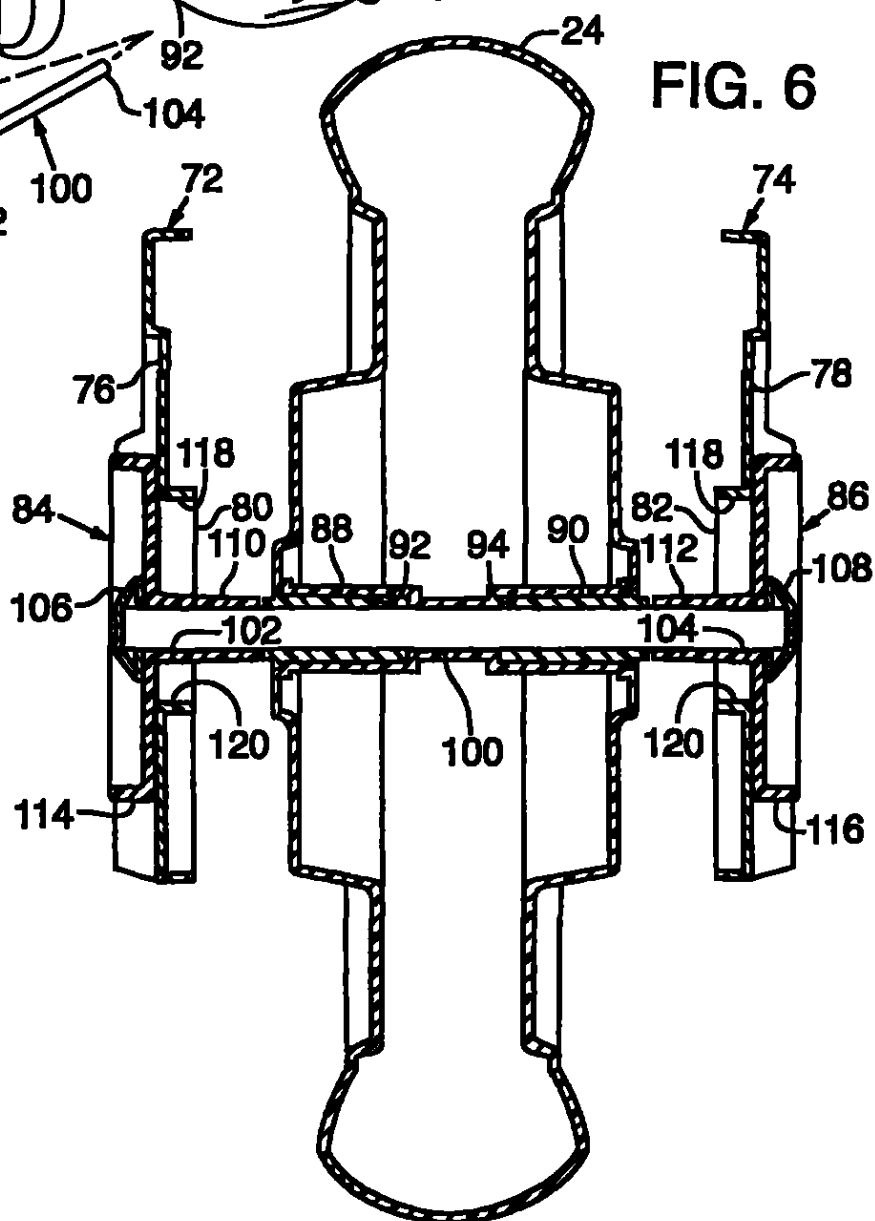
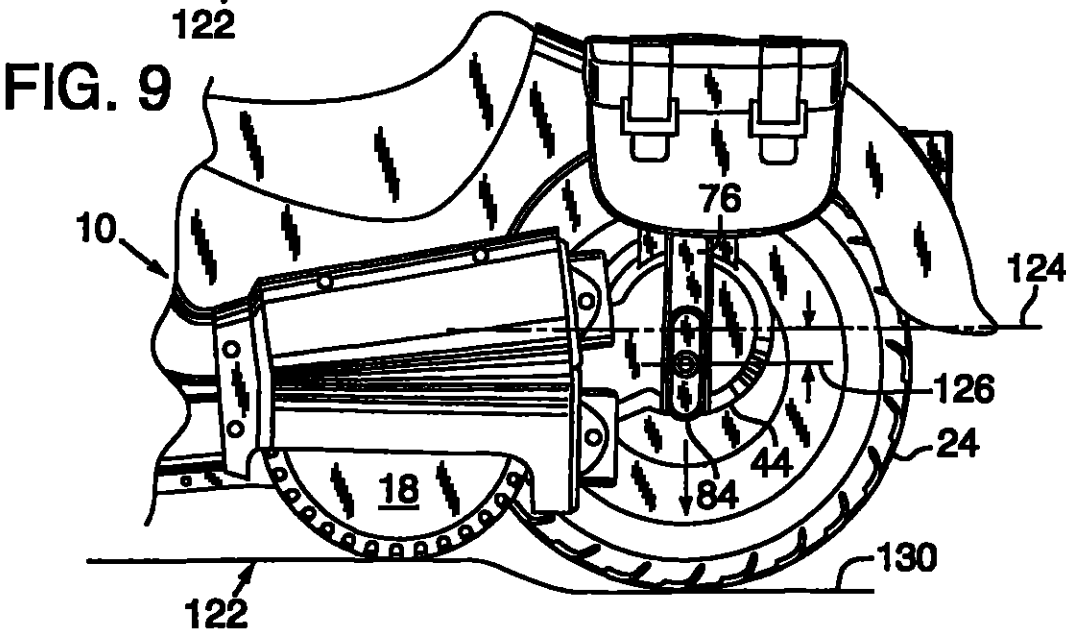
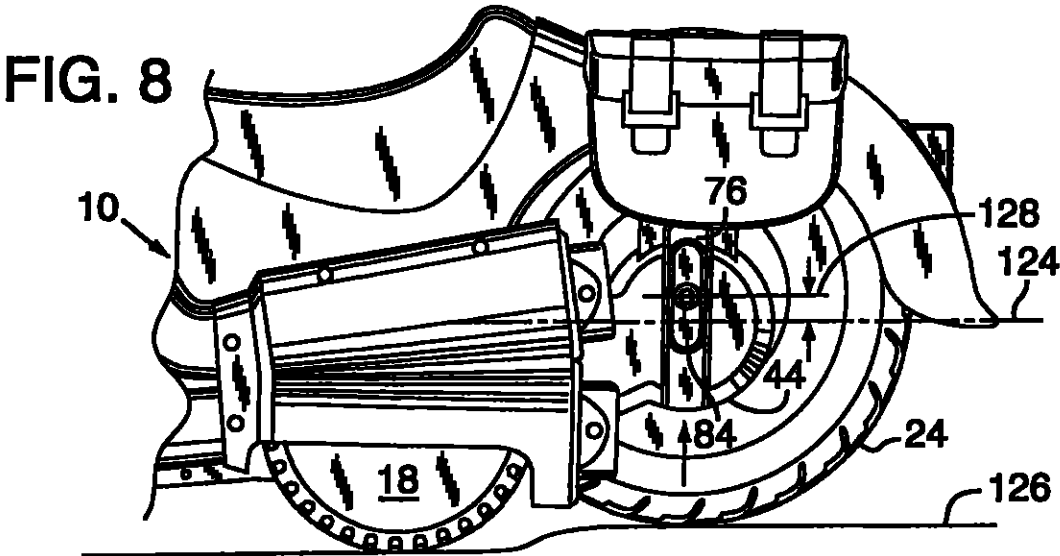
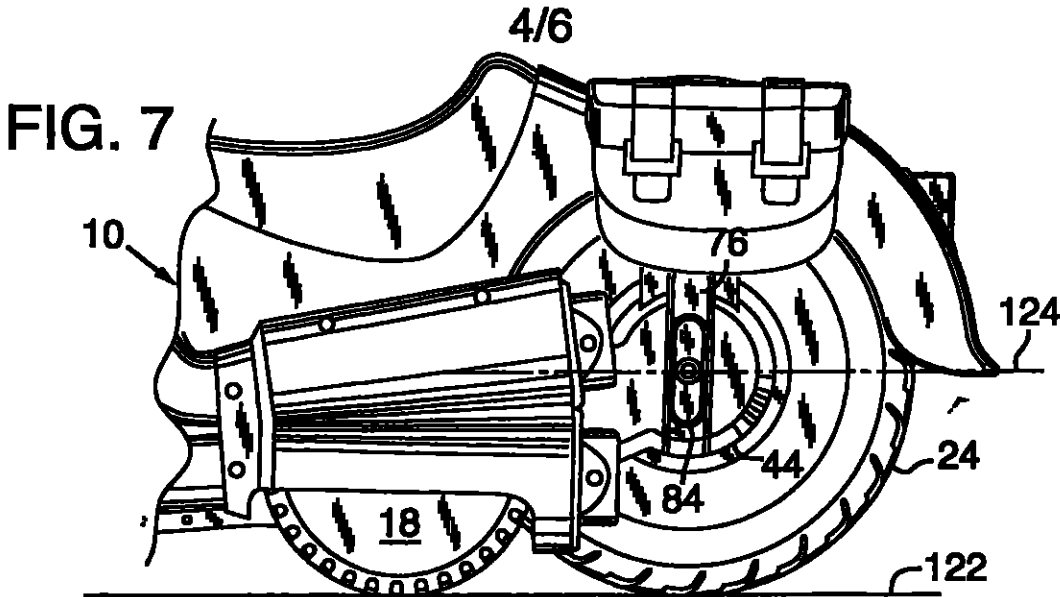
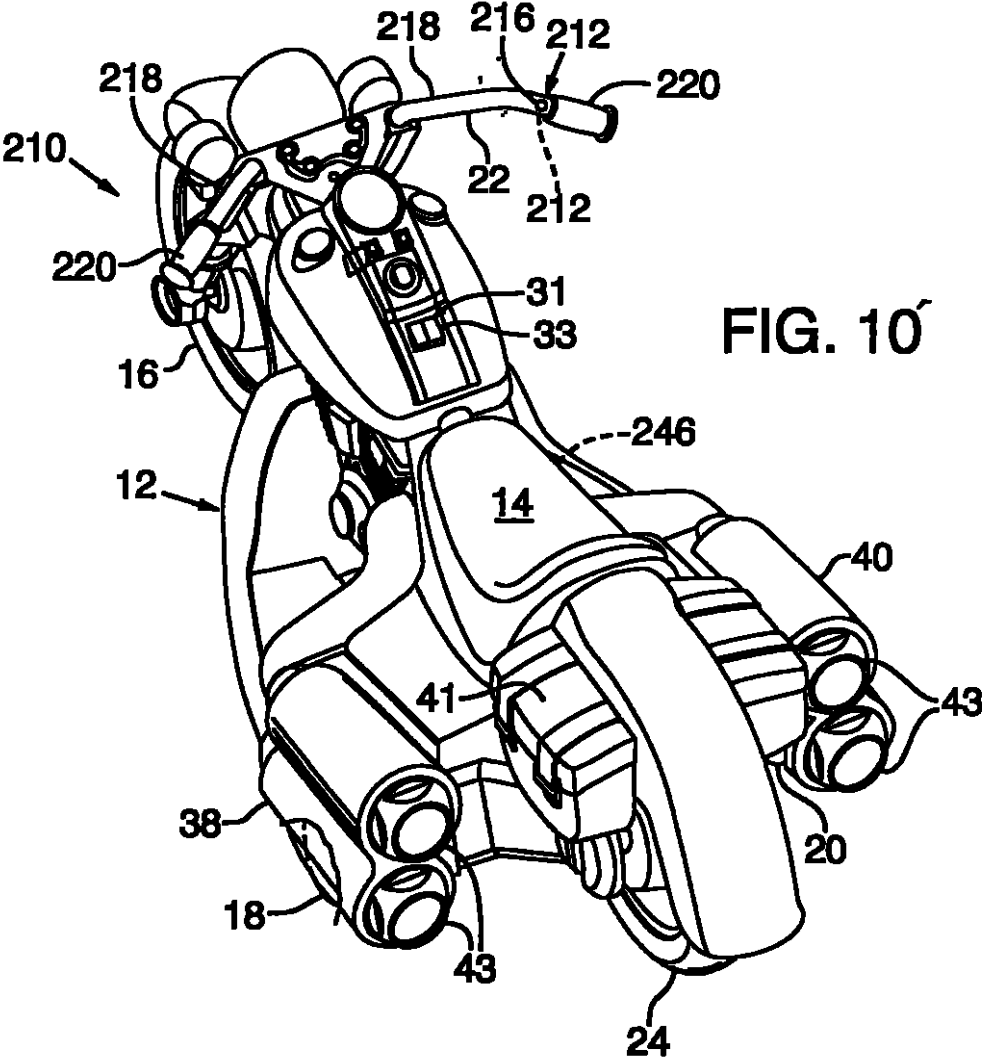


FIG. 6





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6/6

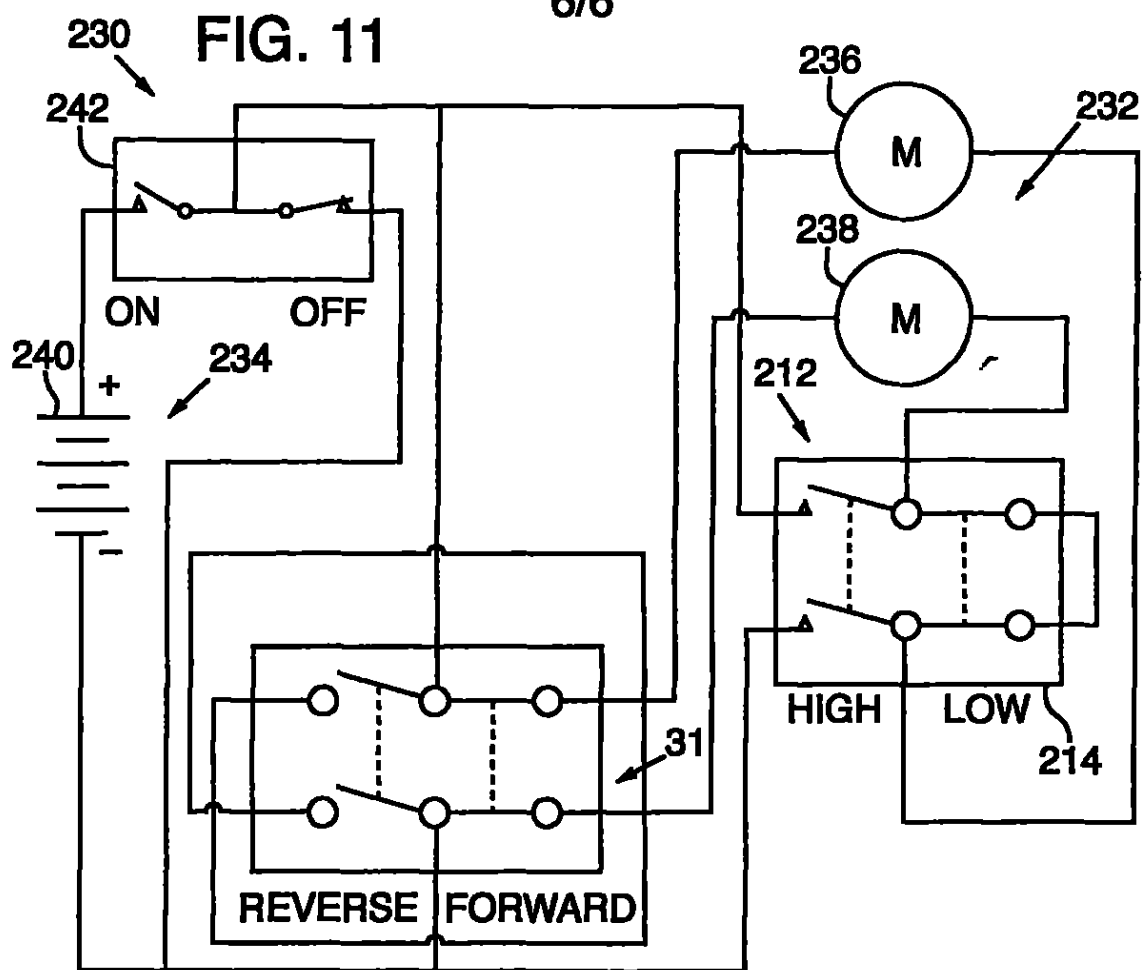
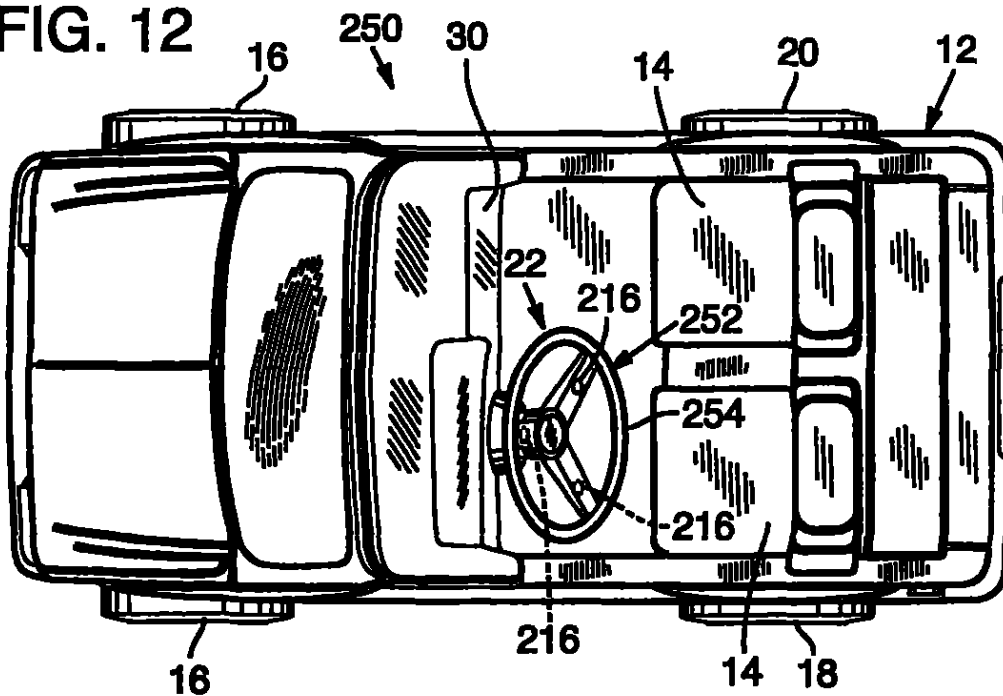


FIG. 12



PS 936431



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REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty

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PCT/US 01/28637

International Application No.

(13.09.01)

13 SEP 2001

International Filing Date

PCT INTERNATIONAL
APPLICATION ROUIS

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(if desired) (12 characters maximum) MPW 3B8C

Box No. I TITLE OF INVENTION

CHILDREN'S RIDE-ON VEHICLE

Box No. II APPLICANT

☐ This person is also inventor

Name and address. (Family name followed by given name, for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

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This person is:

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| ☒ BA Bosnia and Herzegovina | ☒ IN India | ☒ RO Romania |
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| ☒ CR Costa Rica | ☒ LR Liberia | ☒ TR Turkey |
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Check-boxes below reserved for designating States which have become party to the PCT after issuance of this sheet:

- | | | |
|---|--------------------------|--------------------------|
| ☒ Any and all other member states not currently listed. | ☐ | ☐ |
| | ☐ | ☐ |

Precautionary Designation Statement In addition to the designations made above the applicant also makes under Rule 4 9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)

Supplemental Box

If the Supplemental Box is not used this sheet should not be included in the request.

1 If, in any of the Boxes, except Boxes Nos. VIII(i) to (v) for which a special continuation box is provided, the space is insufficient to furnish all the information in such case, write "Continuation of Box No. ..." (indicate the number of the Box) and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient in particular

(i) If more than two persons are to be indicated as applicants and/or inventors and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence (if no State of residence is indicated below

(ii) If, in Box No. II or in any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box" is checked. In such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant,

(iii) If in Box No. II or in any of the sub-boxes of Box No. III the inventor or the inventor/applicant is not inventor for the pt. ... of all designated States or for the purposes of the United States of America. In such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor(s) and next to (each) such name, the State(s) (and/or where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor

(iv) If, in addition to the agent(s) indicated in Box No. IV there are further agents. In such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV

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(vi) If in Box No. VI there are more than five earlier applications whose priority is claimed: in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI

2 If, with regard to the precautionary designation statement contained in Box No. V the applicant wishes to exclude any State(s) from the scope of that statement in such case, write "Designation(s) excluded from precautionary designation statement" and indicate the name or two-letter code of each State so excluded.

Continuation of Box No. X.

Brian L. Blenz

Brian L. Blenz

August 23, 2001

Date

Karl D. Larch

Karl D. Larch

August 23, 2001

Date

Box No. VI PRIORITY CLAIM

The priority of the following earlier application(s) is hereby claimed.

Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application country	regional application.* regional Office	international application: receiving Office
item (1) 18 September 2000 (18.09.00)	09/865 195	United States of America		
item (2)				
item (3)				
item (4)				
item (5)				

☐ Further priority claims are indicated in the Supplemental Box

The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of this international application is the receiving Office) identified as:

☐ all items ☒ item (1) ☐ item (2) ☐ item (3) ☐ item (4) ☐ item (5) ☐ other, see Supplemental Box

* Where the earlier application is an ARIPO application, indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed (Rule 4.10(b)(ii)).

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen, the two-letter code may be used)

ISA / USPO

Request to use results of earlier search, reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority).

Date (day/month/year)

Number

Country (or regional Office)

Box No. VIII DECLARATIONS

The following declarations are contained in Boxes Nos. VIII (i) to (v) (mark the applicable check-boxes below and indicate in the right column the number of each type of declaration)

Number of
declarations

- | | | |
|---|--|--|
| ☐ Box No. VIII (i) | Declaration as to the identity of the inventor | |
| ☐ Box No. VIII (n) | Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent | |
| ☐ Box No. VIII (iii) | Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application | |
| ☐ Box No. VIII (iv) | Declaration of inventorship (only for the purposes of the designation of the United States of America) | |
| ☐ Box No. VIII (v) | Declaration as to non-prejudicial disclosures or exceptions to lack of novelty | |

Box No. IX CHECK LIST; LANGUAGE OF FILING																																												
This international application contains: (a) the following number of sheets in paper form <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">request (including declaration sheets)</td> <td style="text-align: right; padding: 2px;">6</td> </tr> <tr> <td style="padding: 2px;">description (excluding sequence listing part)</td> <td style="text-align: right; padding: 2px;">12</td> </tr> <tr> <td style="padding: 2px;">claims</td> <td style="text-align: right; padding: 2px;">4</td> </tr> <tr> <td style="padding: 2px;">abstract</td> <td style="text-align: right; padding: 2px;">1</td> </tr> <tr> <td style="padding: 2px;">drawings</td> <td style="text-align: right; padding: 2px;">6</td> </tr> <tr> <td style="padding: 2px;">Sub-total number of sheets</td> <td style="text-align: right; padding: 2px;">29</td> </tr> <tr> <td style="padding: 2px;">sequence listing part of description (actual number of sheets if filed in paper form, whether or not also filed in computer readable form, see (b) below)</td> <td style="text-align: right; padding: 2px;">0</td> </tr> <tr> <td style="padding: 2px;">Total number of sheets</td> <td style="text-align: right; padding: 2px;">29</td> </tr> </table> (b) sequence listing part of description filed in computer readable form (i) ☐ only (under Section 801(a)(i)) (ii) ☐ in addition to being filed in paper form (under Section 801(a)(ii)) If the number of carriers (discette, CD-ROM, CD-R or other) on which the sequence listing part is contained (additional info to be indicated under item 9(ii), in right column):	request (including declaration sheets)	6	description (excluding sequence listing part)	12	claims	4	abstract	1	drawings	6	Sub-total number of sheets	29	sequence listing part of description (actual number of sheets if filed in paper form, whether or not also filed in computer readable form, see (b) below)	0	Total number of sheets	29	This international application is accompanied by the following item(s) (mark the applicable check-boxes below and indicate in right column the number of each item) <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">1 ☒ fee calculation sheet</td> <td style="text-align: right; padding: 2px;">1</td> </tr> <tr> <td style="padding: 2px;">2 ☐ original separate power of attorney</td> <td></td> </tr> <tr> <td style="padding: 2px;">3 ☒ original general power of attorney</td> <td style="text-align: right; padding: 2px;">1</td> </tr> <tr> <td style="padding: 2px;">4 ☐ copy of general power of attorney reference number if any</td> <td></td> </tr> <tr> <td style="padding: 2px;">5 ☐ statement explaining lack of signature</td> <td></td> </tr> <tr> <td style="padding: 2px;">6 ☐ priority document(s) identified in Box No. VI as item(s):</td> <td></td> </tr> <tr> <td style="padding: 2px;">7 ☐ translation of international application into (language):</td> <td></td> </tr> <tr> <td style="padding: 2px;">8 ☐ separate subsections concerning deposited microorganism or other biological material</td> <td></td> </tr> <tr> <td style="padding: 2px;">9 ☐ sequence listing in computer readable form (indicate also type and number of carriers (discette, CD-ROM, CD-R or other))</td> <td></td> </tr> <tr> <td style="padding: 2px;"> (i) ☐ copy submitted for the purposes of international search under Rule 13ter only (and not as part of the international application)</td> <td></td> </tr> <tr> <td style="padding: 2px;"> (ii) ☐ (only where check-box (b)(i) or (b)(ii) is marked in left column) additional copies including, where applicable, the copy for the purposes of international search under Rule 13ter</td> <td></td> </tr> <tr> <td style="padding: 2px;"> (iii) ☐ together with relevant statement as to the identity of the copy or copies with the sequence listing part mentioned in left column</td> <td></td> </tr> <tr> <td style="padding: 2px;">10 ☐ other (specify):</td> <td></td> </tr> </table>	1 ☒ fee calculation sheet	1	2 ☐ original separate power of attorney		3 ☒ original general power of attorney	1	4 ☐ copy of general power of attorney reference number if any		5 ☐ statement explaining lack of signature		6 ☐ priority document(s) identified in Box No. VI as item(s):		7 ☐ translation of international application into (language):		8 ☐ separate subsections concerning deposited microorganism or other biological material		9 ☐ sequence listing in computer readable form (indicate also type and number of carriers (discette, CD-ROM, CD-R or other))		(i) ☐ copy submitted for the purposes of international search under Rule 13ter only (and not as part of the international application)		(ii) ☐ (only where check-box (b)(i) or (b)(ii) is marked in left column) additional copies including, where applicable, the copy for the purposes of international search under Rule 13ter		(iii) ☐ together with relevant statement as to the identity of the copy or copies with the sequence listing part mentioned in left column		10 ☐ other (specify):		Number of items
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Figure of the drawings which should accompany the abstract: Fig 10	Language of filing of the international application: English																																											
Box No. X SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE <i>Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).</i>																																												
Date 13 September 2001 (13.09.01) David S D'Ascenzo Reg No 39,952 of Attorneys for Applicants																																												

For receiving Office use only	
1 Date of actual receipt of the purported international application 410 Rec'd PCT/PTO 13 SEP 2001	2 Drawings: ☐ received.
3 Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application	☐ not received:
4 Date of timely receipt of the required corrections under PCT Article 11(2):	6 ☐ Transmittal of search copy delayed until search fee is paid
5 International Searching Authority (if two or more are competent) ISA /	
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PCT

FEE CALCULATION SHEET

Annex to the Request

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PCT/US 01/28637

International Application No.

13 SEP 2001

Date stamp of the receiving Office

Applicant's or agent's
file reference

MPW 3B8C

Applicant

MATTEL, INC, et al

CALCULATION OF PRESCRIBED FEES

1 TRANSMITTAL FEE

240 00 T

2 SEARCH FEE

450 00 S

International search to be carried out by USRO

(If two or more International Searching Authorities are competent to carry out the international search, indicate the name of the Authority which is chosen to carry out the international search.)

3 INTERNATIONAL FEE

Basic Fee

Where item (b) of Box No. IX applies, enter Sub-total number of sheets } 29
Where item (b) of Box No. IX does not apply enter Total number of sheets }

b1 first 30 sheets 382 00 b1

b2 0 x \$9 00 = 0 b2
number of sheets in excess of 30 fee per sheet

b3 additional component (only if sequence listing part of description is filed in computer readable form under Section 801(a)(i), or both in that form and on paper, under Section 801(a)(ii))

400 x 0 b3
fee per sheet

Add amounts entered at b1 b2 and b3 and enter total at B

382 00 B

Designation Fees

The international application contains 89 designations.

6 x \$82 00 = 492 00 D
number of designation fees payable (maximum 4) amount of designation fee

Add amounts entered at B and D and enter total at I

874 00 I

(Applicants from certain States are entitled to a reduction of 75% of the international fee. Where the applicant is (or all applicants are) so entitled, the total to be entered at I is 25% of the sum of the amounts entered at B and D.)

15 00 P

4. FEE FOR PRIORITY DOCUMENT (if applicable)

5 TOTAL FEES PAYABLE

1579 00

Add amounts entered at T S, I and P and enter total in the TOTAL box

TOTAL

☐ The designation fees are not paid at this time.

MODE OF PAYMENT

☐ authorization to charge
deposit account (see below)

☐ postal money order

☐ cash

☐ coupons

☒ cheque

☐ bank draft

☐ revenue stamps

☐ other (specify)

AUTHORIZATION TO CHARGE (OR CREDIT) DEPOSIT ACCOUNT

(This mode of payment may not be available at all receiving Offices)

☐ Authorization to charge the total fees indicated above.

☒ (This check-box may be marked only if the conditions for deposit accounts of the receiving Office as permitted) Authorization to charge any deficiency or credit any overpayment in the total fees indicated above.

☐ Authorization to charge the fee for priority document

Receiving Office: RO/ USRO

Deposit Account No. 11-1540

Date: 13 September 2001 (13 09 01)

Name: David S. D'Ascenzo

Signature: [Signature]

PCT

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PCTAUS 01728637

GENERAL POWER OF ATTORNEY

(for several international applications filed under the Patent Cooperation Treaty)

(PCT Rule 90.5)

The undersigned person(s)

(Family name followed by given name, for a legal entity, full official designation. The address must include postal code and name of country)

MATTEL, INC.
333 Continental Boulevard
El Segundo California 90245
United States of America

hereby appoint(s) the following person as.



agent



can also represent me

Name and address

(Family name followed by given name, for a legal entity, full official designation. The address must include postal code and name of country)

DASCELO David S
Kolech Hartwell Dickinson McCormack & Heuser P C
520 S.W. Yamhill Street, Suite 200
Portland Oregon 97204
United States of America

to represent the undersigned before



all the competent International Authorities



the International Searching Authority only



the International Preliminary Examining Authority only

in connection with any and all international applications filed by the undersigned with the following Office

USPO

as receiving Office

and to make or receive payments on behalf of the undersigned

Signature(s) *(where there are several persons, each of them must sign, and to each signature, indicate the name of the person signing and the capacity in which the person signs. If such capacity is not obvious from reading this power):*


Daniel F. Sullivan Assistant Secretary

Date

8-30-01

Children's Ride-On Vehicle

Field of the Invention

The invention relates generally to children's ride-on vehicles

Background and Summary of the Invention

5 Ride-on vehicles for children have become increasingly popular due in part to the desire of children to drive self-propelled vehicles resembling full-size vehicles. Such ride-on vehicles, or ride-ons, are typically propelled by battery-powered motors and generally include scaled-down features of full-size vehicles.

One challenge in designing reduced-scale vehicles is to make the vehicle resemble a full-size vehicle, while still providing a vehicle that is safe for use by children. When a ride-on is designed to resemble a four-wheeled vehicle, such as a car or truck, the corresponding ride-on tends to also have four wheels. When a ride-on is designed to resemble a motorcycle, however, a balance must be reached between safety and the accuracy of the reproduction. Certainly the most accurate reproduction is for the ride-on to only have two wheels. However, children may not have the size, strength or coordination to balance a two wheeled ride-on, especially when propelled by the ride-on's motor. Adding additional wheels to the ride-on detracts from the accuracy of the reproduction, and thus may reduce the child's desire for the ride-on.

The invented ride-on, or ride-on vehicle, includes a frame adapted to support a child, and a drive assembly with a battery-powered motor assembly. The ride-on further includes one or more steerable wheel and one or more driven wheel. In some embodiments, the ride-on resembles a full-size motorcycle. In some embodiments, the ride-on includes a free-floating wheel, which is unbiased and travels within a defined range of positions with respect to the ride-on's frame as external forces are imparted to the wheel. In some embodiments, the ride-on includes a high-speed switch positioned for momentary high-speed operation of the vehicle.

Brief Description of the Drawings

Fig. 1 is an isometric view of a children's ride-on constructed according to the present invention, with a portion of the ride-on's frame broken away to expose a drive wheel.

Fig. 2 is a side elevation view of the ride-on of Fig. 1

Fig. 3 is a cross-sectional view of one of the drive wheels shown in Fig. 1

Fig. 4 is an exploded isometric view of the wheel bearing and gear shown in Fig. 3

5 Fig. 5 is an exploded isometric view of the free-floating rear wheel shown in Fig. 4

Fig. 6 is a cross-sectional view of the wheel of Fig. 5

Fig. 7 is a fragmentary side elevation view of the rear portion of the ride-on of Fig. 4 on a straight surface

10 Fig. 8 is the side elevation view of Fig. 7, with the rear wheel raised from the position of Fig. 7 to accommodate travel over an uneven surface

Fig. 9 is the side elevation view of Fig. 7, with the rear wheel lowered from the position of Fig. 7 to accommodate travel over another uneven surface.

Fig. 10 is an isometric view of another children's ride-on vehicle according to the present invention

Fig. 11 is a schematic wiring diagram

Fig. 12 is a top plan view showing another embodiment of a ride-on vehicle according to the present invention

Detailed Description of the Preferred Embodiments

and Best Mode of the Invention

A children's ride-on constructed according to the present invention is shown in Fig. 1 and generally indicated at 10. Ride-on 10 includes a frame, or vehicle body, 12 with a seat 14, a forward wheel 16, drive wheels 18 and 20, a steering mechanism 22, and a rear wheel 24.

25 As shown, ride-on 10 generally resembles a reduced-scale motorcycle, and more particularly a reduced-scale Harley-Davidson® motorcycle. It should be understood that ride-on 10 may be shaped to resemble other motorcycles and two-wheeled vehicles. Frame 12 typically is formed from molded plastic parts that are secured together by screws or other suitable fasteners. As shown in Fig. 2, frame 12 is
30 shaped to resemble components of a conventional motorcycle, including a head light 26, front fender and struts 27 and 28, dash board 30, gas tank 32, engine 34, foot boards 36, exhaust pipes 38 and 40 (shown in Fig. 1), saddle bag 41, rear fender 42,

tail lights 43 and swing arms 44 and 45 (shown in Fig. 5) Frame 12 also houses the vehicle's electrically powered motor assembly, battery assembly, and electrical and mechanical interconnections (not shown) It should be understood that the motor and battery assemblies each may include one or more motors or batteries, respectively It should be understood that the shape and configuration of the frame will vary depending on the particular model and style of motorcycle that ride-on 10 is designed to resemble

It is within the scope of the present invention that the ride-on may resemble other types of full-sized vehicles, such as cars, trucks, off-road vehicles, construction equipment, aircraft, seacraft and the like Similarly, the ride-on may have a unique body shape or configuration that is designed to appeal to children and which does not necessarily resemble a reduced-scale version of a conventional full-sized vehicle.

In the embodiment of the ride-on shown in Figs 1 and 2, it can be seen that drive wheels 18 and 20 are substantially housed within the portions of frame 12 forming exhaust pipes 38 and 40 By "drive wheel" or "driven wheel" it is meant that the rotational output of the ride-on's motor assembly drives the rotation of the wheel about, or with, its axle or other mount This is compared to a non-driven wheel, which rotates in the direction of movement of the ride-on, but is not directly coupled to the rotational output of the ride-on's motor assembly

Because its drive (also referred to as driven) wheels are substantially hidden from view, ride-on 10 has the appearance of a two-wheeled motorcycle, even though it has at least three wheels supporting the frame in a stable operating position. In fact, in Fig. 1 it can be seen that a portion of the frame forming exhaust pipe 38 had to be broken away to reveal drive wheel 18 Similarly, drive wheel 20 is almost completely hidden from view by "exhaust pipe" 40 In Fig. 2, it can be seen that the lower portion of exhaust pipe 38 is removed to provide additional clearance for drive wheel 18 It is within the scope of the present invention that the exhaust pipes may have less of their lower portions removed, such as shown in dashed lines in Fig. 2 Furthermore, although a pair of driven wheels are shown in Figs 1 and 2, it is within the scope of the invention that more or less driven wheels may be used, either alone or in combination with one or more additional non-driven wheels

Because ride-on vehicles are often used by young children who may not have the strength, size and/or coordination to balance a two-wheeled vehicle, ride-on 10 provides at least three spaced-apart supports that stabilize the ride-on. More specifically, front wheel 16 and drive wheels 18 and 20 form a tricycle. However, by
 5 hiding the drive wheels within the frame, ride-on 10 enables the child to feel and look like it is riding a two-wheeled motorcycle.

In Fig. 3, the interconnection between drive wheel 20 and the ride-on's motor assembly is shown. It should be understood that drive wheel 18 is coupled to the motor assembly with a similar set of interconnections. As shown, an axle 46
 10 extends through wheel 20, which includes an outer recess 48 into which an axle bushing 50 is seated. Axle 46 passes through bushing 50, and wheel 20 is retained on the axle by a cap nut 52 or other suitable fastener. Wheel 20 includes an inner face 54 that includes a recess 56 within which a wheel bearing 58 is received. Bearing 58 is rotatably mounted on axle 46 and includes plural outer ribs 60 that extend radially
 15 outward from axle 46. Outer ribs 60 are received within corresponding channels 62 in recess 56. Once seated therein, wheel 20 rotates when bearing 58 is rotated about, or with, axle 46.

Wheel bearing 58 is rotated by a gear 64, which is driven by the ride-on's motor assembly (not shown) through any suitable mechanical interconnection, as
 20 is known in the art. Gear 64 is seated on axle 46 and includes plural teeth 66 that extend into cavities 68 formed by internal ribs 70 within bearing 58. Closing an electrical circuit between the ride-on's battery assembly and its motor assembly imparts an angular velocity to gear 64, which in turn directs the rotation of bearing 58 and drive wheel 20 by the engagement of teeth 66 and internal ribs 70. Because
 25 bearing 58 is interlocked with drive wheel 20, the rotation of bearing 58 also causes wheel 20 to rotate, thereby propelling the ride-on in the selected direction.

The circuit described above typically is opened and closed by a switch, which is mounted on the frame in a position where it may be operated by the child. Examples of suitable switches are pedals on one of the ride-on's foot boards 36, a
 30 throttle switch on steering mechanism (i.e. handle bars) 22, or a switch on dash board 30. The ride-on's controls may include a reversing switch 31 to enable the child to

selectively change the direction of revolution of the above components, and thereby change the direction of travel of ride-on 10

Unlike drive wheels 18 and 20, which are used to propel ride-on 10, or front wheel 16, which is oriented by steering mechanism 22 to steer the ride-on, rear wheel 24 just goes along for the ride. By this it is meant that wheel 24 is neither driven nor steerable. Instead, it is a free-spinning wheel that freely rotates and travels along a defined path as external forces are imparted upon it. By external forces, it is meant forces that originate from external ride-on 10 and which are imparted directly or indirectly to rear wheel 24. Examples of external forces are gravity and bumps or shocks caused by ride-on 10 traveling over uneven terrain. Wheel 24 may also be described as being free from internal vertical bias when within its defined range of positions because ride-on 10 does not include any spring, lever arm or other biasing mechanism to urge wheel 24 to a particular position. As such, wheel 24 is neither biased nor otherwise loaded to remain in a particular position or orientation with respect to the rest of ride-on 10. Wheel 24 may also be described as traveling or floating within a defined range of positions to adjust freely to changes in elevation in the surface over which ride-on 10 travels.

As shown in Figs 5 and 6, the portions of frame 12 which form the ride-on's "swing arms" 44 and 45 are in fact spaced-apart mounts 72 and 74 between which wheel 24 is rotatably mounted. Mounts 72 and 74 are fixed in place relative to the rest of frame 12, and includes regions 76 and 78 that form a track with vertical channels 80 and 82. As discussed subsequently, channels 80 and 82 cooperate with axle bearings 84 and 86 to define a race or vertical range through which wheel 24 may travel as external forces are applied to the wheel.

As perhaps best seen in Fig. 5, wheel 24 includes a pair of bushings 88 and 90 that are inserted into a corresponding pair of receptacles 92 and 94, one on each side of wheel 24. As shown, the portions of bushings 88 and 90 which are inserted within the receptacles are generally hex-shaped. Receptacles 92 and 94 have a similar shape, thereby enabling wheel 24 to rotate as bushings 88 and 90 rotate. It should be understood that configurations other than the hex-shaped configuration shown in Fig. 5 may be used.

An axle 100 passes through wheel 24 and bushings 88 and 90 to provide an axis about which wheel 24 may rotate. Axle 100 includes a pair of ends 102 and 104, which each are passed through a respective one of channels 80 and 82 and axle bearings 84 and 86. A pair of cap nuts or other suitable fasteners 106 and 108 are mounted on the ends of axle 100. Fasteners 106 and 108 secure the axle bearings, mounts, and wheel together with only a small amount of side-to-side play, while still allowing bushings 88 and 90, and thus wheel 24, to rotate on the axle.

As discussed, channels 80 and 82 define a vertical range of positions within which axle bearings 84 and 86 are free to travel. As shown, channels 80 and 82 each have an oval, or racetrack-shaped opening, through which a stem portion 110 and 112 of one of the axle bearings extends. While the stem portions extend through the bearings, the head portions 114 and 116 of each axle bearing slide up and down the track defined by regions 76 and 78. Movement of axle bearings 84 and 86 up and down in response to uneven terrain is limited by top 118 and bottom 120 limits of channels 80 and 82, which are indicated in Fig. 6.

From a nominal position on level terrain, wheel 24 can move up approximately 0.4 inches and down approximately one inch. By varying the length of the channels or size of the axle bearings, it is possible to define a range of positions which is larger or smaller than this range. For most ride-ons, it is expected that a range of between approximately one inch and approximately three inches will be sufficient. It should be understood, however, that the most suitable range of positions will tend to vary depending upon such factors as the size of the ride-on, the surface upon which it is intended for use, and the distance between the ride-on's drive wheels and free-floating wheel. Therefore ranges outside of those recited above are possible and within the scope of the present invention.

In Fig. 7, ride-on 10 is shown traveling over a straight surface 122. By this it is meant that the surface on which ride-on 10 travels is planar. As shown, surface 122 is level, however it could also be inclined at an angle. In Fig. 7 it can be seen that each of the ride-on's wheels are in contact with surface 122. The position of rear wheel 24 shown in Fig. 7 will be referred to herein as a neutral or intermediate position, since wheel 24 can travel upward and downward from this position, as discussed below. In Fig. 7, the position of axle 100 is generally indicated with a line

124 extending generally parallel to surface 122. Because wheel 24 is mounted to frame 12 so that it may freely spin and travel up and down as external forces are imparted to the wheel, the frictional contact with surface 122 causes the wheel to rotate as ride-on 10 travels over surface 122. This causes wheel 24 to rotate in a direction and with a speed that corresponds with the speed and direction of ride-on 10. This also makes wheel 24 appear to be a driven wheel, although in reality it is a free-floating wheel.

In Fig. 8, surface 122 is uneven. Specifically, the portion 126 of surface 122 over which wheel 24 is positioned is higher than the portions of the surface over which the ride-on's front and drive wheels 16, 18 and 20 are positioned. Because wheel 24 is not secured or biased to remain in its neutral position, the axle bearings have raised upwardly in their respective regions of the track, thereby also raising rear wheel 24 from its position shown in Fig. 7. For comparison with the position shown in Fig. 7, the position of axle 100 in this elevated position is generally indicated with line 128, and the extent to which wheel 24 has been raised can be seen by the distance between lines 124 and 128.

Because wheel 24 is a free-floating wheel and not a fixed wheel, it may deflect away from its current position when it encounters an external force, such as when ride-on 10 encounters the bump between the uneven portions of surface 122. This enables drive wheels 18 and 20 to remain in contact with surface 122. It should be understood by looking at Fig. 8 that if rear wheel 24 was not a free-floating wheel, the differences in elevation between front and rear wheels 16 and 24 would have resulted in drive wheels 18 and 20 being suspended above surface 122. Since these wheels are the ride-on's drive wheels, the vehicle would not be able to continue along its path until the user or other person freed the ride-on from its stuck position.

On the other hand, if the portion of surface 122 is at a lower elevation than the corresponding portions of the surface over which the ride-on's front wheel travels, then the vehicle also could become stuck if wheel 24 was not a free-floating wheel. Alternatively, rear wheel 24 could be suspended above the surface. For example, in Fig. 9, surface 122 includes a depression 130 over which wheel 24 is positioned. Once suspended above this portion of the surface, the illusion of ride-on 10 being an actual two-wheeled motorcycle would be lost because the rear wheel

would be elevated above the surface. However, by allowing rear wheel 24 to float within region 76 of the track, the wheel travels downward in the track to remain in contact with the surface. The position of axle 100 in Fig. 9 is indicated with a line 130, and the relative distance between this position and the position shown in Fig. 7 is shown between lines 126 and 130.

Besides the advantage of preventing the ride-on from becoming wedged or stuck in a position if the drive wheels lose contact with the surface over which the ride-on is traveling, free-floating rear wheel 24 also results in the ride-on looking more like an actual two-wheeled motorcycle because the wheel remains in contact with the ground surface at all times. This frictional contact with the surface causes the wheel to rotate about its axle, much like an actual non-driven wheel of a vehicle. Therefore, wheel 24 will spin in the direction of movement of ride-on 10 and will spin faster or slower as the speed of ride-on 10 is increased or decreased. Furthermore, because mounts 72 and 74 are configured to resemble the swing arm of an actual motorcycle, upward and downward movement of axle bearings 84 and 86 and wheel 24 as ride-on 10 travels over uneven terrain closely resembles the visual appearance of an actual motorcycle traveling over uneven terrain.

Another embodiment of a ride-on according to the present invention is shown in Fig. 10 at 210. Similar to the previously described ride-ons, ride-on 210 generally resembles a motorcycle. Unless otherwise specified, the elements, subelements and possible variations discussed above may be included with ride-on 210. In Fig. 10, it can be seen that the ride-on includes a frame, or vehicle body, 12 with a seat 14 upon which a child operating the ride-on sits, a steering mechanism 22, and a plurality of wheels 16, 18, 20 and 24. Ride-on 210 may be formed with or without free-floating wheel 24, and with driven wheels 18 and 20 with configurations other than housed within exhaust pipes 38 and 40. In Fig. 10, the ride-on includes a switch assembly 212 having a switch (shown in Fig. 11 at 214) and a user-manipulable portion 216 on the steering mechanism 22 of the ride-on. As shown, steering mechanism 22 takes the form of a handlebar assembly in the form of a pair of handlebars 218 having regions 220 adapted to receive the child's hands while the ride-on is being operated. Regions 220 may also be referred to as handgrips because these regions are adapted to be grasped by the child operating the ride-on to steer the ride-

on It should be understood that the handlebar assembly may include a single handlebar with a pair of handgrips, as opposed to the pair of handlebars shown in Fig. 10

Preferably, user-manipulable portion 216 is positioned for actuation by a child without requiring the child's hands to be removed from regions 220 For example, portion 216 may be mounted on the handlebar assembly or other suitable steering mechanism at least proximate the handgrips so that the child's hands do not need to be removed from the handgrips to actuate portion 216 By "at least proximate" it is meant that portion 216 is on, adjacent, or otherwise positioned sufficiently near handgrips 220 so the child's hands can remain on the hand grips, steering wheel, or other suitable structure used to steer and control the direction of the ride-on, without a loss of control when the child selects high-speed operation of the ride-on by pressing or otherwise actuating portion 216

Switch assembly 212 selectively configures the ride-on's drive assembly for high-speed operation Switch 214 and corresponding portion 216 may take any suitable form, such as toggle switches, rotatable members, momentary switches, rocker switches, push-buttons, etc In some embodiments, switch assembly 212 is configured to require constant pressure from the child to remain in the high-speed configuration. For example, the switch assembly may include a biasing mechanism, such as a spring 222, that biases the switch assembly to return to the low-speed configuration when portion 216 is released by the child. This prevents the ride-on from being inadvertently operated in the high speed configuration. In such a configuration, switch assembly 212 may be thought of as providing a "turbo switch" that a child operating the ride-on may use to provide a "boost" of power More particularly, when the ride-on is configured to be driven in a forward direction and the child presses portion 216, the ride-on will now travel at a higher speed than before the button was pressed

An example of a suitable wiring diagram for ride-on 210 is shown in Fig. 11 Similar to the previously discussed ride-ons, ride-on 210 includes a drive assembly 230 that includes a motor assembly 232 and a battery assembly 234 The motor assembly includes one or more motors, and the battery assembly includes one or more batteries For example, in Fig. 11 the drive assembly is shown including a

pair of motors 236 and 238 powered by a single battery 240. It should be understood that the drive assemblies for the ride-ons discussed herein may include two motors powered by a single battery or a pair of batteries, or alternatively, may include a single motor powered by one or more batteries.

5 Although not required, an advantage of having more than one motor, more than one battery, or both, is that the speeds of operation of the ride-on may be varied by selectively connecting the motors or batteries between parallel and series configurations. For example, a pair of six-volt batteries will deliver six volts to a motor assembly if connected in parallel, and 12 volts if connected in series. Similarly,
10 a battery assembly adapted to deliver 12 volts to a motor assembly that includes a pair of motors will deliver 12 volts to each motor if the motors are connected in parallel, and 6 volts to each motor if the motors are connected in series.

 Also shown in Fig. 11 are switches 31, 214 and 242. Switch 31 is a reversing switch that includes a user-manipulable portion 33 (shown in Fig. 10) that
15 enables a user to selectively change the direction the ride-on travels by reversing the polarity of the current from the battery assembly to the motor assembly. Switch 214, discussed above, is a "turbo" switch that selectively causes high-speed operation of the ride-on. Switch 242 is an on/off switch that includes a user-manipulable portion
20 246 that is selectively actuated by the user to complete the electrical circuit between the ride-on's motor and battery assemblies, thereby causing driven operation of the ride-on. An illustrative example of a suitable portion 246 is a foot pedal on one of the ride-on's running boards, such as shown in Fig. 10. A suitable foot pedal is disclosed in U.S. Patent No. 5,319,996, which is hereby incorporated by reference. Other
25 examples include a rotary grip on the ride-on's handlebars and a pushbutton, shiftable lever or the like on the ride-on's dashboard. In Fig. 11, switches 31 and 214 are shown as double-pole double-throw switches, although any suitable switch mechanism may be used. In Fig. 11, switches 214 and 242 are shown as momentary switches that are respectively biased, such as with springs, to the low-speed and off configurations.

30 In the diagram shown in Fig. 11, it can be seen that the drive assembly does not permit high-speed operation of the ride-on in the reverse direction. This safety feature prevents the child from being able to drive the vehicle in reverse at high

speeds. In the diagram shown, power is no longer delivered to the motor assembly if high-speed, reverse operation is selected. Alternatively, the wiring harness may be configured to produce low-speed reverse operation regardless of whether high- or low-speed reverse operation is selected by the child. An example of another suitable switch assembly adapted to preclude high-speed operation of the ride-on in a reverse direction is disclosed in U.S. Patent No. 5,644,114, which is hereby incorporated by reference.

It should be understood that the wiring diagram shown in Fig. 11 is for the purpose of illustration and that other suitable wiring diagrams, or wiring harnesses, may be used. For example, reversing switch 31 may be omitted to produce a ride-on that is driven by motor assembly 232 in one direction only. As another example, omission of speed switch 212 results in a ride-on that is driven at a single speed by motor assembly 232.

It should be understood that the above-described "turbo switch" may be used on ride-ons having configurations other than the illustrative embodiment shown in Fig. 10. For example, it may be used on battery-powered ride-ons that resemble other forms of full-sized vehicles, such as cars, trucks, off-road vehicles, aircraft, and the like, as well as battery-powered ride-ons that have unique shapes and designs. Furthermore, switch assembly 212 may be used with other types of steering mechanisms, such as steering wheels, a single handlebar, and steering levers.

For example, in Fig. 12 a ride-on is shown at 250 that includes a steering mechanism 22 in the form of a steering wheel 252. It should be understood that ride-on 250 includes any of the drive assemblies described above with respect to ride-on 210. As shown, wheel 252 includes user-manipulable portion 216 of "turbo" switch assembly 212 positioned for engagement by a child holding steering wheel 252 having user-grippable portion 254. Additional user-manipulable portions 216 are shown in dashed lines in Fig. 12 to indicate that the ride-on may include more than one user-manipulable portion 216, such as to enable a wider range of positions in which the child may grasp steering mechanism 22 and actuate at least one of the user-manipulable portions without removing the child's hands from the steering mechanism.

While the invention has been disclosed in its preferred form, the specific embodiments thereof as disclosed and illustrated herein are not to be considered in a limiting sense as numerous variations are possible. Applicants regard the subject matter of their invention to include all novel and non-obvious combinations and subcombinations of the various elements, features, functions and/or properties disclosed herein. The following claims define certain combinations and subcombinations that are regarded as novel and non-obvious. Other combinations and subcombinations of features, functions, elements and/or properties may be claimed through amendment of the present claims or presentation of new claims in this or a related application. Such claims, whether they are broader, narrower or equal in scope to the original claims, are also regarded as included within the subject matter of applicants' invention.

WE CLAIM

- 1 A children's ride-on vehicle, comprising.
 a frame,
 a plurality of wheels, including at least one driven wheel adapted to be rotationally driven by a drive assembly and at least one steerable wheel adapted to be selectively steered by a child operating the vehicle,
 a steering assembly including a steering mechanism coupled to the at least one steerable wheel, wherein the steering mechanism includes a region adapted to be grasped by a child operating the vehicle to steer the vehicle,
 a drive assembly having a motor assembly adapted to drive the at least one driven wheel and a battery assembly adapted to power the motor assembly; and
 a switch assembly including a user-manipulable portion mounted on the steering assembly at least proximate the one region adapted to be grasped by a child operating the vehicle, wherein the drive assembly has a first configuration adapted to drive the vehicle at a first selected speed, and upon actuation of the switch assembly the drive assembly is configured to a second configuration adapted to drive the vehicle at a second selected speed that is greater than the first selected speed

- 2 The vehicle of claim 1, wherein the switch assembly includes a biasing mechanism adapted to bias the user-manipulable portion toward an unactuated position in which the drive assembly is in the first configuration

- 3 The vehicle of claim 1, wherein the motor assembly includes a pair of motors, wherein in the first configuration the pair of motors are connected to the battery assembly in series, and further wherein in the second configuration the pair of motors are connected to the battery assembly in parallel

- 4 The vehicle of claim 1, wherein the steering mechanism includes a handlebar assembly

5 The vehicle of claim 4, wherein the at least one region adapted to be grasped by a child is a handgrip on the handlebar assembly, and further wherein the user-manipulable portion is mounted at least proximate the handgrip

6 The vehicle of claim 1, wherein the steering mechanism includes a steering wheel that includes the at least one region adapted to be grasped by a child

7 The vehicle of claim 6, wherein the user-manipulable portion is mounted on the steering wheel

8 A drive assembly for a children's ride-on vehicle, the drive assembly comprising

a motor assembly including at least one motor having a rotatable output shaft,

a battery assembly adapted to provide power to the motor assembly, wherein the battery assembly includes at least one battery;

a power switch having a first power configuration, in which an electrical circuit is completed between the motor assembly and the battery assembly, and a second power configuration, in which the electrical circuit is not completed, and

a speed switch having a first speed configuration, in which the drive assembly is configured to rotate the output shaft at a first speed, and a second speed configuration, in which the drive assembly is configured to rotate the output shaft at a second speed greater than the first speed configuration, wherein the speed switch includes a biasing mechanism adapted to bias the speed switch toward the first speed configuration

9 The assembly of claim 8, wherein the motor assembly includes a pair of motors, wherein in the first speed configuration the speed switch connects the motors in series and in the second speed configuration the speed switch connects the motors in parallel

10 The assembly of claim 8, wherein the battery assembly includes a pair of batteries, wherein in the first speed configuration the speed switch connects the batteries in parallel and in the second speed configuration the speed switch connects the batteries in series.

11 The assembly of claim 8, further including a direction switch having a first direction configuration in which the drive assembly is adapted to rotate the output shaft in a first direction, and a second direction configuration in which the drive assembly is adapted to rotate the output shaft in a second direction opposite the first direction

12 The assembly of claim 8 in combination with a children's ride-on vehicle having a frame having a seat adapted to receive a child, a plurality of wheels including at least one driven wheel and at least one steerable wheel, and a steering assembly coupled to the at least one steerable wheel

13 The assembly of claim 12, wherein the speed switch includes a user-manipulable portion adapted to be engaged by a child to selectively position the speed switch between the first and second speed configurations.

14 The assembly of claim 13, wherein the steering assembly includes a steering mechanism having a region adapted to be grasped by a child to steer the vehicle.

15 The assembly of claim 14, wherein the user-manipulable portion is at least proximate the region adapted to be grasped by a child to steer the vehicle.

16 The assembly of claim 15, wherein the steering mechanism includes a handlebar

17 The assembly of claim 15, wherein the steering mechanism includes a steering wheel

Abstract

A children's ride-on vehicle The ride-on includes a frame adapted to support a child, and a drive assembly with a battery-powered motor assembly The ride-on further includes one or more steerable wheel and one or more driven wheel

- 5 In some embodiments, the ride-on resembles a full-size motorcycle. In some embodiments, the ride-on includes a free-floating wheel, which is unbiased and travels within a defined range of positions with respect to the ride-on's frame as external forces are imparted to the wheel In some embodiments, the ride-on includes a high-speed switch positioned for momentary high-speed travel of the vehicle.

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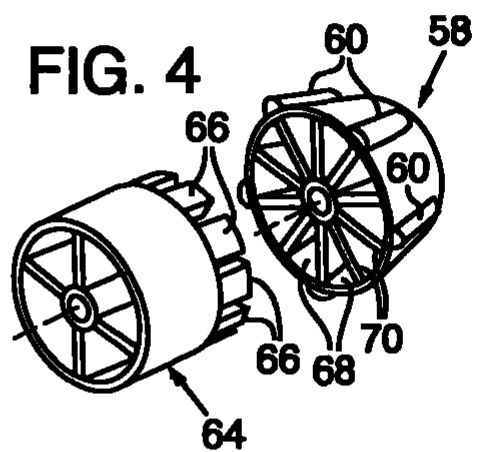
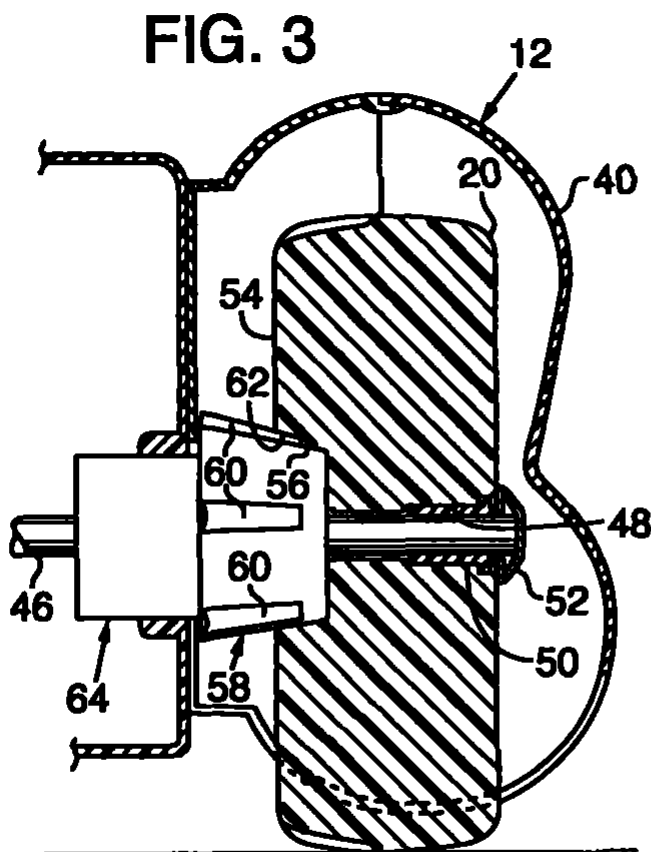
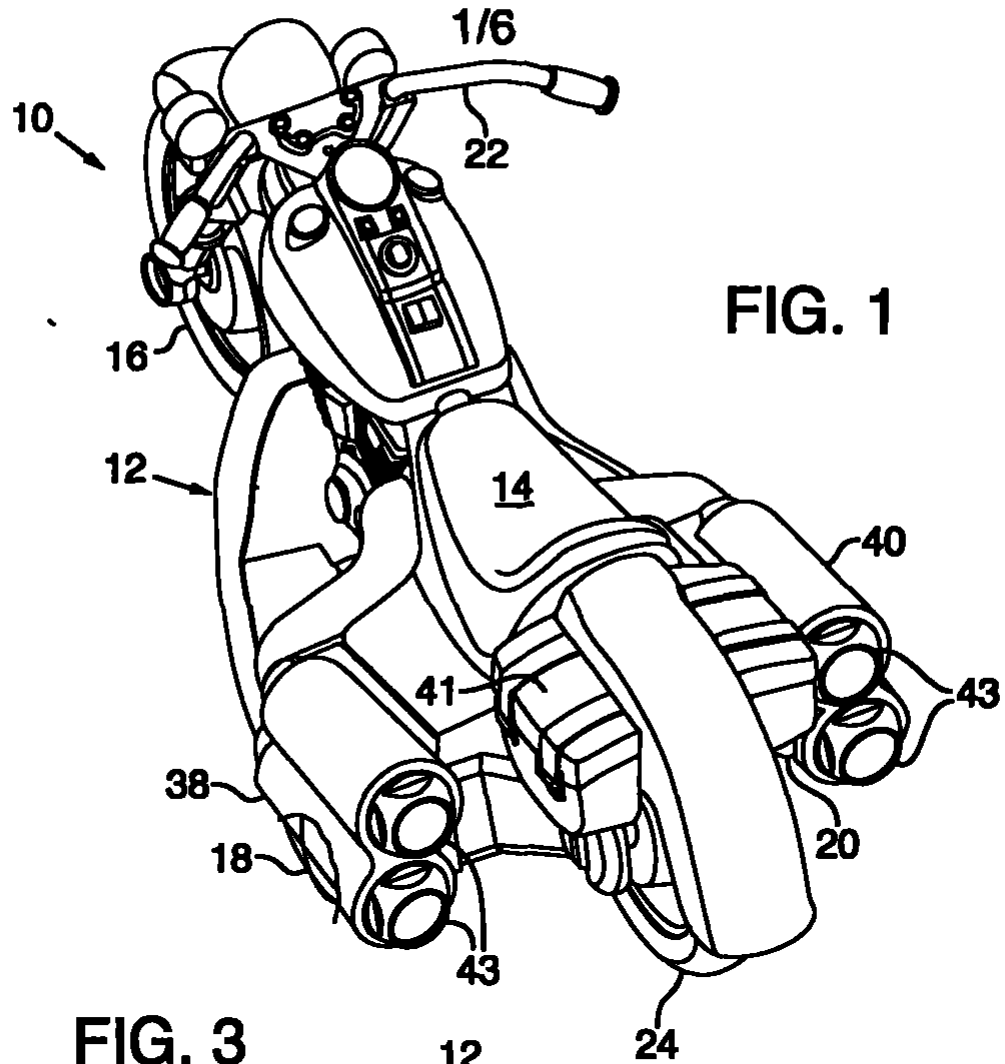
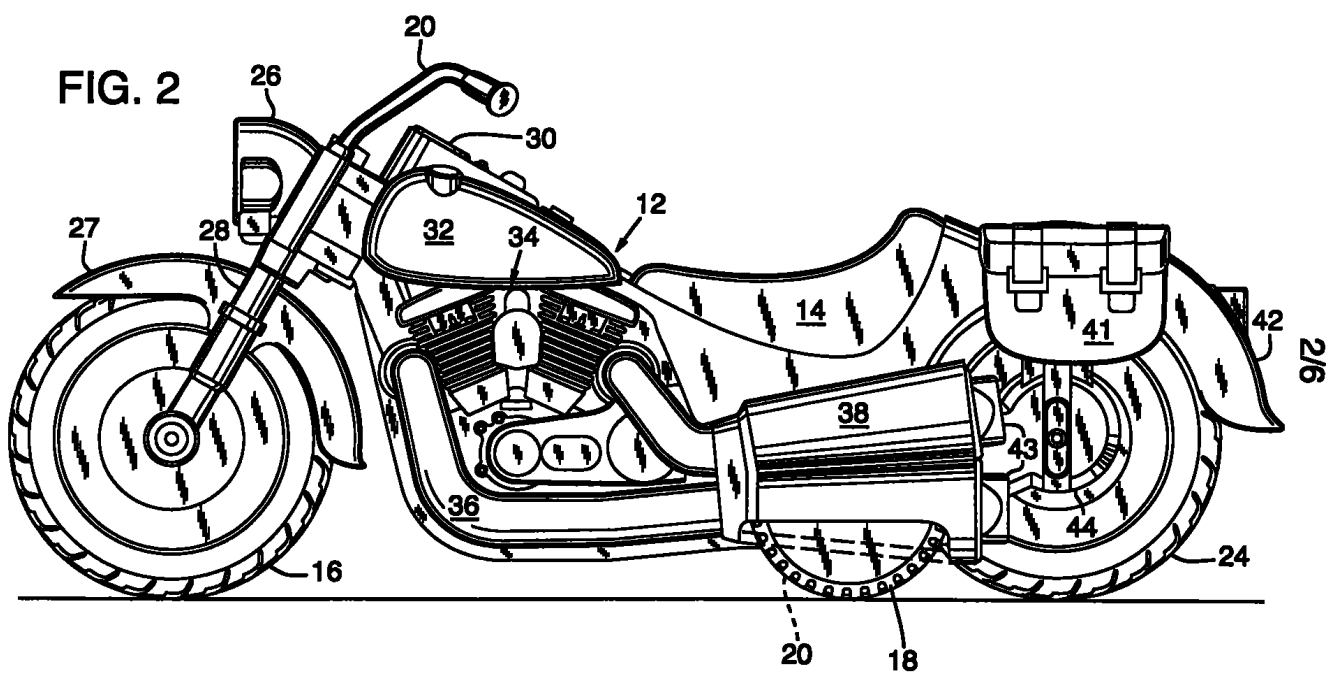
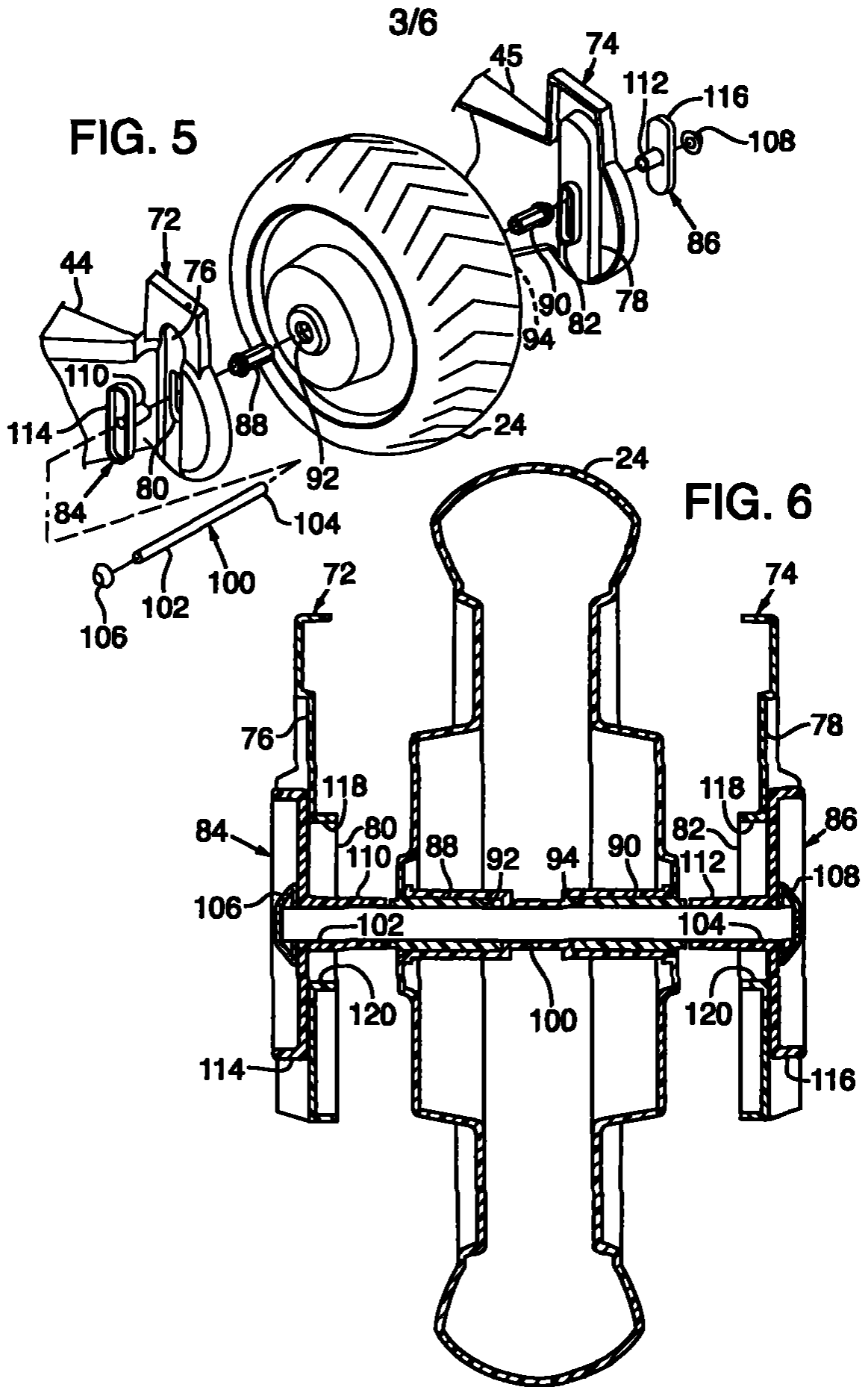
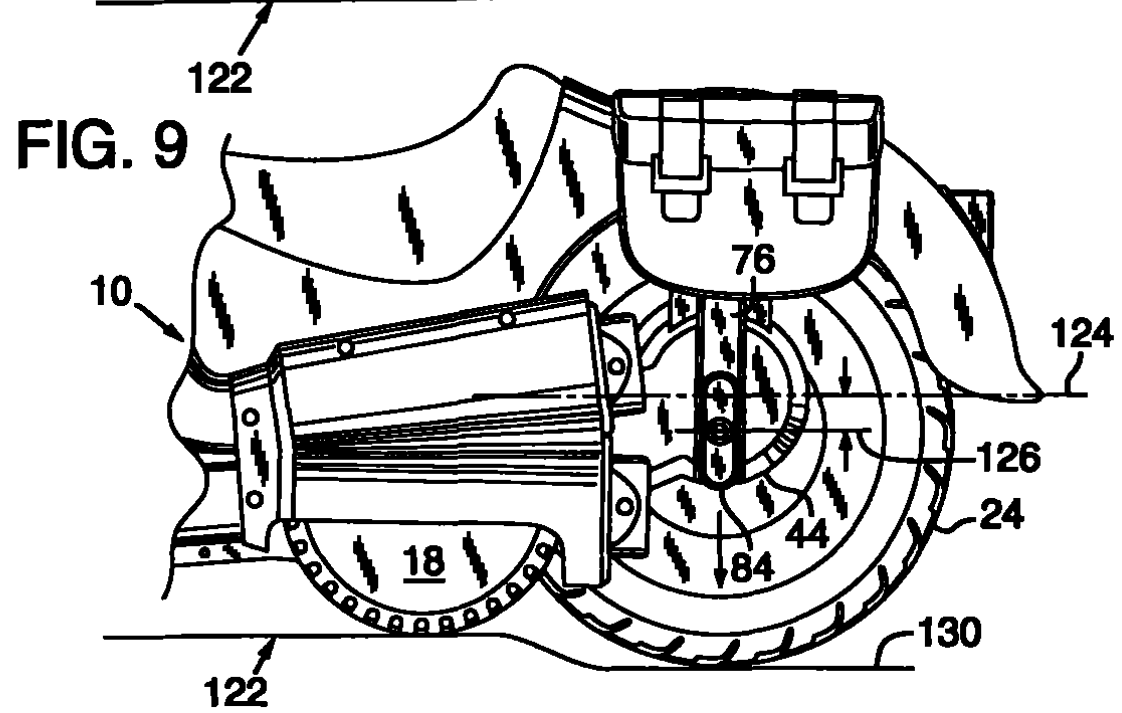
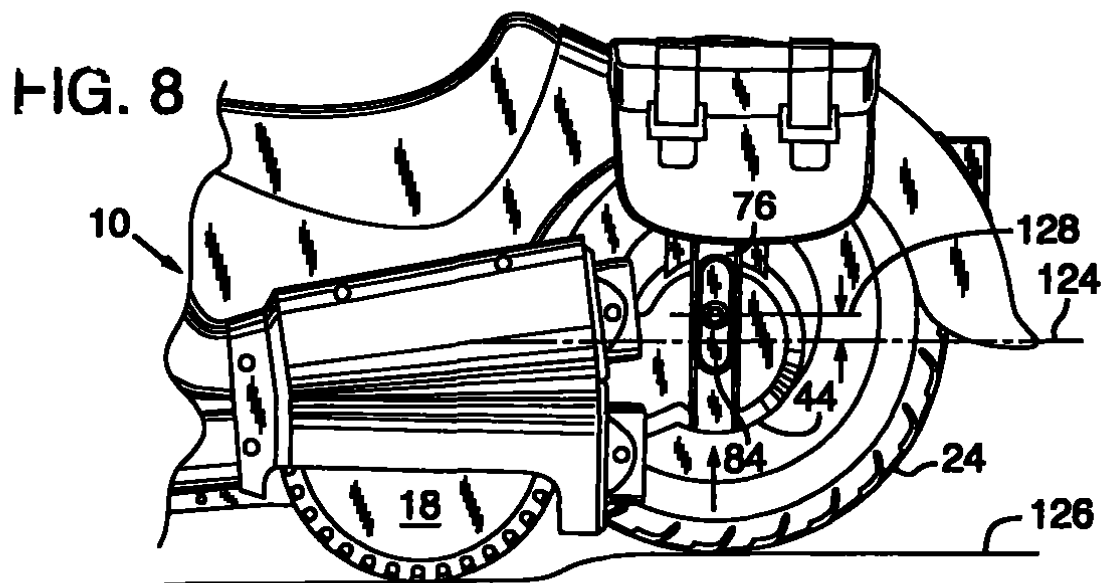
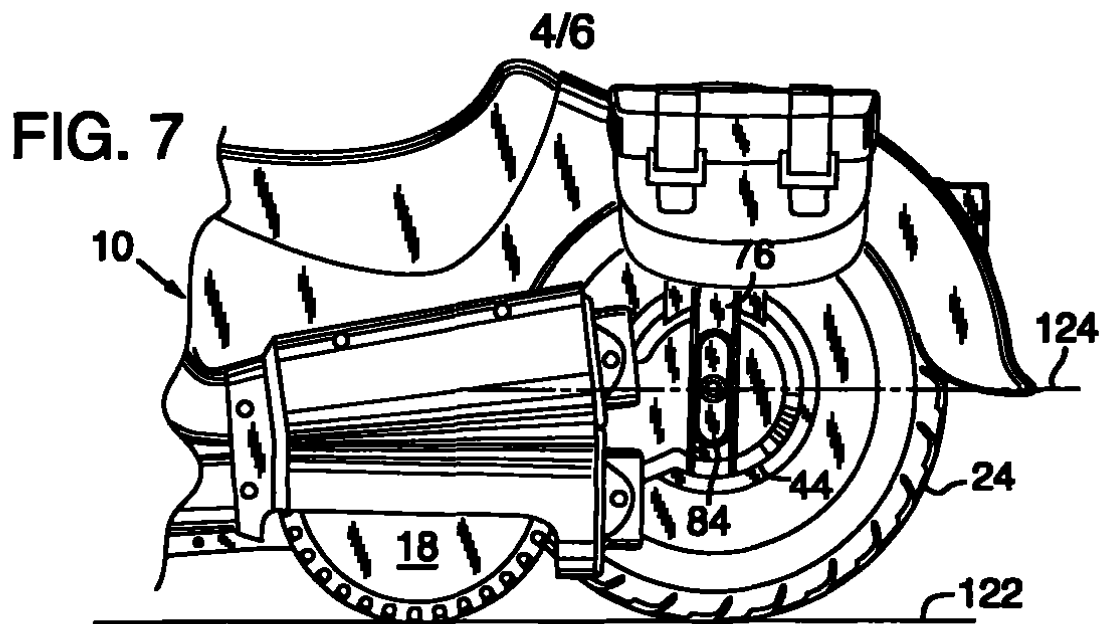


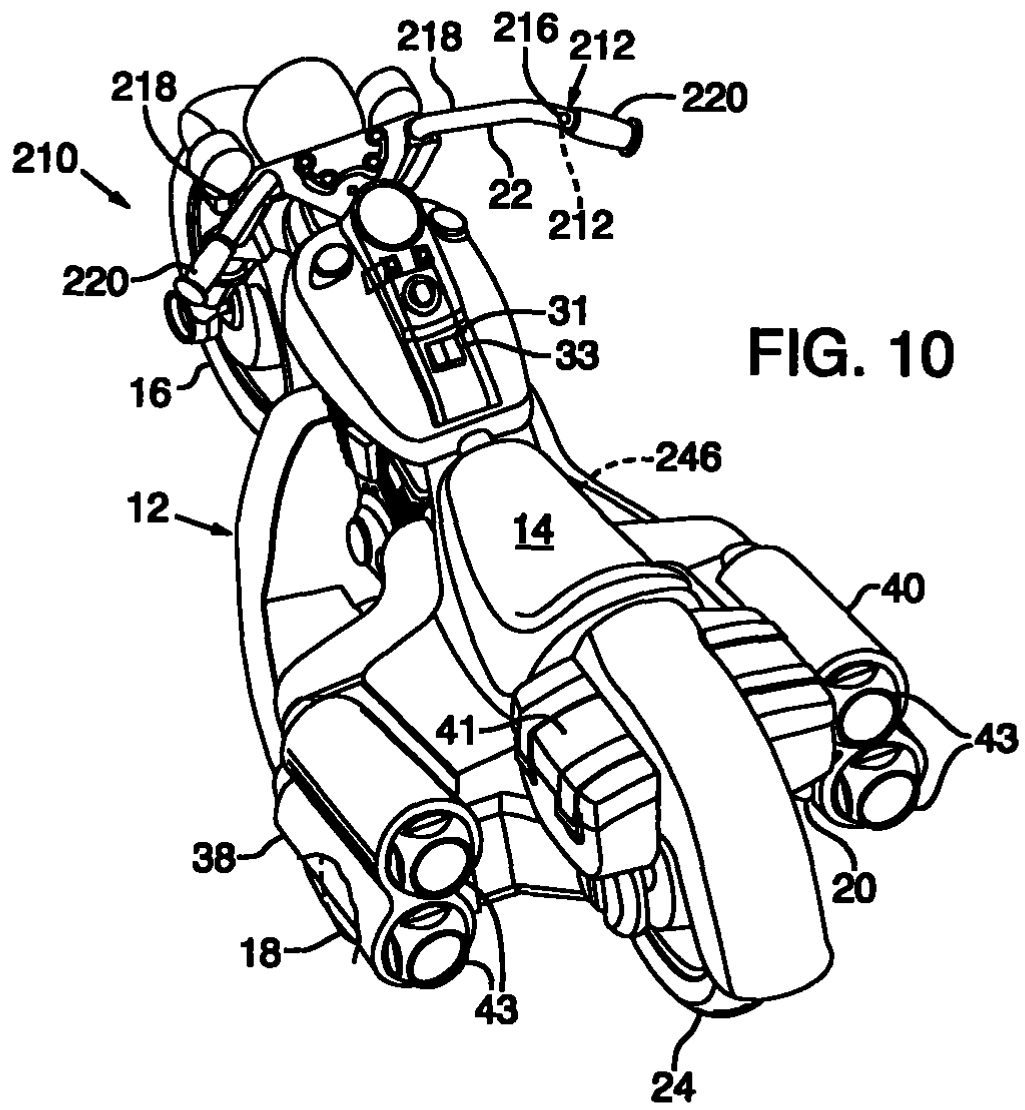
FIG. 2



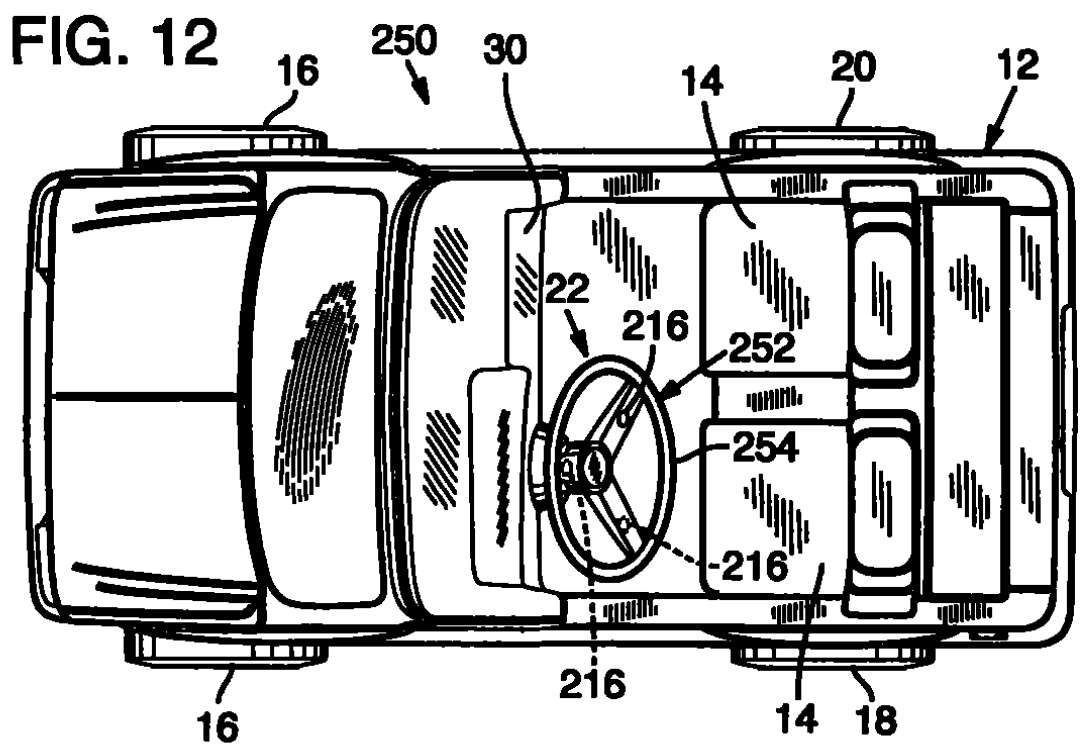
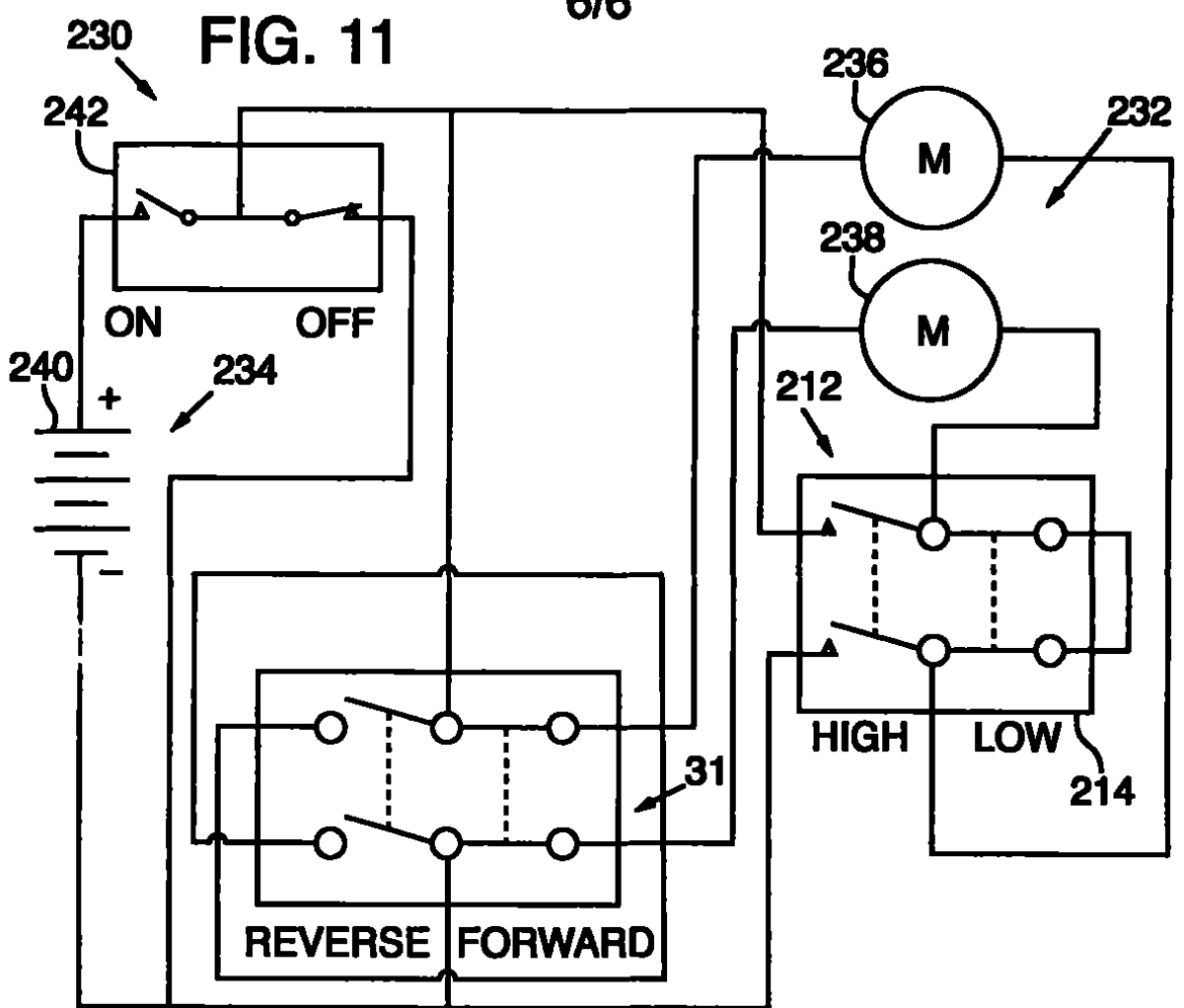




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3	REVISTA		
4	LIBRO		
5	PERIÓDICO	1	
6	DISQUETES		
7	SOBRE DE MANILA	1	
8	SOBRE BLANCO TAMAÑO CARTA		
9	SOBRE BLANCO TAMAÑO OFICIO	✓	
10	OTROS		
Observaciones			
art final			

142



143

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SUPERINDUSTRIA Y COMERCIO
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Observación: 2003 ATUACION DE MARCAS REGISTRADAS

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FECHA MARZO 10 DE 2003

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	Nº PAGO	FECHA PBO	Vr PAGO
CAVELIER ABOGADOS	CONSIGNACION	BANCO POPULAR	050-00110-6	9005687	10/03/2003	20,101,000 00

***** CONCEPTO *****

CANT	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
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		TOTAL	\$ 400,000 00

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RESPONSABLE

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REQUISITOS NECESARIOS PARA PRESENTACION Y AGILIZACION DEL
TRAMITE

	USUARIO	RADICADOR
PATENTE DE INVENCION	()	(x)
MODELO DE UTILIDAD	()	(x)
- Indicación de que se solicita la concesión de una patente.	()	(x)
- Datos de identificación del solicitante o de la persona que se presenta la solicitud.	()	(x)
- Descripción de la invención.	()	()
- Dibujos de ser estos pertinentes.	()	(x)
- Comprobante de Pago de las tasas establecidas.	()	(x)

COMPLETA () INCOMPLETA ()

DISEÑO INDUSTRIAL ()

- Indicación de que se solicita el registro de Diseño Industrial	()	()
- Datos de identificación del solicitante o de la persona que presenta la solicitud.	()	()
- Representación gráfica y fotográfica del Diseño Industrial o muestra del Material que incorpora el diseño	()	()
- Comprobante de pago de las tasas establecidas	()	()

COMPLETA () INCOMPLETA ()

ESQUEMA DE TRAZADO ()

- Indicación de que solicita el registro de un Esquema de trazado	()	()
- Datos de identificación del solicitante o de la persona que presenta La solicitud	()	()
- Representación gráfica del esquema de trazado	()	()
- Comprobante de pago de las tasas establecidas	()	()

COMPLETA () INCOMPLETA ()

Eduar Nucino
Firma Responsable

18-03-03
Fecha