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References cited:
EP-A- 0 250 263
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GB-A- 1 451 981
GB-A- 2 132 080

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Description

This invention relates to a rocking unit of the type adapted to effect rocking of an infant’s perambulator, in order to pacify an infant in well known manner. In this specification the term “perambulator” is intended to include perambulators themselves, push chairs, strollers, or any other wheeled vehicles adapted to carry infants, and the rocking of which can provide a desirable effect on an infant such as causing it to become pacified or go to sleep.

Perambulator rocking units of many different types have been proposed heretofore. However, as far as applicant is aware, most of these involve the use of very complicated arrangements and, in particular, a perambulator generally has to be attached to such a rocking unit by some form of attachment means or other.

Thus, one type of rocking unit which has been made available comprises a support having inclined surfaces up which the wheels of a perambulator are to be moved, and a tension device for association with the axle of a perambulator to pull it so that its wheels ride up the inclined surfaces, and then to relax the tension so that the wheels return down the inclined surfaces.

This arrangement provides both an up and down, and forward and backward, rocking movement which, it is considered, may be undesirable. Also, numerous modern perambulators do not have axles and a special modification would be necessary in order to render such a unit effective on axle-less perambulators.

Furthermore, the tension imparting arrangement has to be physically associated with the perambulator and, in addition, the intermittent application of load in moving the perambulator up the inclined surfaces is not conducive to promoting a long life of what should, for practicality sake, be a lightweight motor unit.

Also in the prior art, GB-A-1451981 discloses a baby rocker which comprises a base having a top flexibly secured thereto. A weight is movably secured to the top so that the top may be rocked on the base.

It is an object of the present invention to provide a perambulator rocking unit which has a particularly simple construction, which is easy to locate operatively relative to a perambulator, and which imparts a desirable movement to a perambulator in use.

According to the present invention, there is provided a rocking unit adapted for association with a perambulator, said unit comprising, a body, a weight adapted to oscillate to create a rocking movement and drive means for effecting such movement of the weight cyclically, characterised in that said body has at least one cradle support for a perambulator wheel and is supported on support rocker therefor which render the body rockable about a transverse central line, wherein a lowermost region of the or each cradle support and the centre of gravity of the body are both located substantially directly over said transverse central line, said weight being movable from side to side across the centre of gravity of the body to effect rocking of the body on the support rockers.

Further preferred features of the invention provide for the body to have a cradle support for each of two spaced, axially aligned perambulator wheels; for the weight to be movable in a circle about an upwardly extending axis; for the weight to be supported at a radially outer position by a support wheel engaging a support surface associated with the body; and for the weight to be composed of an electric motor itself, optionally together with an additional weight if required, wherein the motor is rotatable about said upwardly extending axis, with its own axis being at right angles thereto.

Additional preferred features of the invention provide for the body to comprise a central part having, on each side thereof, one of a pair of spaced support members with each of which is associated a cradle support and a support rocker; for the central part to carry the weight and the drive means; and for the support rockers to be located inwardly of the extremities of the body.

A still further important preferred feature of the invention provides for the support rockers to have a profile composed of two substantially flat surfaces diverging upwardly from a central, arcuate, interconnecting part of the rocker surface located substantially on said transverse central line.

Where the means for effecting movement of the weight cyclically is electrically powered, the electrical power supply may be a battery or a mains supply. In such a case electrical control circuitry may be included to provide for the rocking unit to be switched on according to the detection of predetermined sounds (in particular a baby crying). Such electrical circuitry may also include a timer to switch the rocking unit off after a predetermined time period. The unit may also embody a music box.

For a better understanding of the invention and to show how the same may be carried into effect, reference will now be made, by way of example only, to the accompanying drawings, in which:

FIG. 1 is an isometric view of a perambulator rocking unit according to the invention;
FIG. 2 is an end view of a cradle support and associated support rocker;
FIG. 3 is a front elevation of the perambulator rocking unit;
FIG. 4 is a schematic, isometric illustration of the internal mechanism for oscillating a weight from side to side about the centre of gravity of the rocking unit body;
FIG. 5 is an elevation illustrating a perambulator in association with a rocking unit according to the invention; and,

FIG. 6 is a block diagram of one arrangement of electrical circuit for controlling the rocking unit.

In this embodiment of the invention a perambulator rocking unit, generally indicated by numeral 1 in Fig. 1, comprises a body 2 having a central part 3 and a pair of spaced support members 4, one on each side of the central part 3.

Each support member has its upper surface formed to define a cradle support 5 for receiving a wheel of a perambulator, the cradle support 5 being of part-circular shape in end view as shown most clearly in Fig. 2, and having a raised ridge 6 at its outer extremity to prevent a wheel from moving laterally off the cradle surface, in use. The radius of curvature of the part-circular cradle surface is chosen so as to be at least as large, and if not larger than, the radius of the largest perambulator wheel with which the rocking unit is to be used.

Each support member 4 also has a support rocker 7 formed at its under-surface such that the whole body can rock about the two spaced support rockers 7 and about a transverse central line or axis parallel to the axis of the part-circular cradle support 5. Also, the axis of the part-circular cradle support 5 is located directly above the centre of the rocker surfaces and, in addition, the centre of gravity indicated by numeral 8 of the body is preferably also located directly above the transverse central line which connects the lowermost points of the support rockers.

It is considered to be an important feature that the rocker surfaces have a profile defined by two substantially flat sections 9, which diverge outwardly from the lowermost portion 10 of the rocker surface, at which point the two flat surfaces 9 are joined through an arcuate, central, interconnecting part defining said lowermost portion 10. The effect of this is that the body basically rocks between two positions in which it is supported on the flat surfaces 9 alternately. Also, it is to be mentioned that the support rockers are located inwardly from the lateral extremities 11 of the support members so that the likelihood of toes or fingers being caught under the rocker surfaces is substantially diminished.

In order to effect the rocking motion of the body, the central part of the body houses a weight mechanism (see Fig. 4) which is composed of a flat support surface 12 of circular shape, and located with its axis in line with the centre of gravity 8 of the body. The support surface 12 has a fixed (non-rotatable) axle 13 extending upwardly therefrom.

A weight unit 14 assumes the form of an electric motor, and optionally an additional weight 15, supported radially outwardly on a support wheel 16 which runs on the support surface 12, whilst the inner end of the motor unit is attached to, and supported by, the fixed axle through a gear drive unit 17 of the bevel type. This enables the entire gearbox and weight unit to rotate about the fixed axle 13 when the motor is in operation. Certain types of motor vehicle windscreen wiper motors have been found to be ideally suited for this purpose, as they embody electric motor and gearbox in a "ready-to-use" form, and the fixed axle is defined by the normally driven windscreen wiper operator spindle of the motor assembly. Built-in slip rings enable electricity to be supplied to the motor as it rotates about the fixed axle 13.

It will be understood that the mechanism described above, when in operation, causes the weight unit 14 to rotate about the axis of the axle 13 which, in turn, causes the weight to move cyclically from one side of the axis 18 and centre of gravity of the body, to the other side.

This has the effect of rocking the rocking unit backwards and forwards between the two positions in which it is supported on the flat faces 9 of the rocker surface as the weight moves adequately from one side to the other.

In use, a perambulator 19 will have, for example, its two front wheels 20 located in the cradles and the electric motor is operated. This causes the weight unit to move around the circular support surface and the weight to be transferred from one side of the centre of gravity of the body to the other cyclically. The rocking unit alternates moves from being supported on one of the flat surfaces 9 of the rocker surfaces to the other.

The nature of the rocker surfaces causes the rocking unit to move decisively from being supported on flat surface of the support rocker to the other and, it has been found, that this imparts a most desirable movement to a perambulator. The perambulator wheels simply move on the cradle surfaces during this movement.

The perambulator rocking unit is also provided with an on/off switch 21 and an adjustable timer unit 22 which can be set to activate the perambulator rocking unit for predetermined lengths of time. The electrical circuit may also include a sound activated switch 23 adapted, for example, to be activated by a baby's cry. A musical box 24 or other sound emitting device may also be energised during energisation of the motor. Clearly the motor could be either battery or mains electrical supply operated.

It has been found that a perambulator rocking unit as above described operates highly effectively in use and imparts a most desirable motion to a perambulator.

In other embodiments of the invention, for example, a weight could move transversely across the body in a reciprocating straight line, or a freely movable rolling weight could be employed with means for transferring
it from one side of the centre of gravity to the other cyclically over a hump. Also, it may be found to be adequate to provide a cradle support for only one wheel of a perambulator.

The invention therefore provides a simple yet highly effective perambulator rocking unit which operates highly effectively in use.

Claims

1. A rocking unit (1) adapted for association with a perambulator (19), said unit (1) comprising, a body (2), a weight (14) adapted to oscillate to create a rocking movement and drive means (15) for effecting such movement of the weight (14) cyclically, characterised in that said body (2) has at least one cradle support (5) for a perambulator wheel (20) and is supported on support rockers (7) therefor which render the body (2) rockable about a transverse central line, wherein a lowermost region of the or each cradle support (5) and the centre of gravity (8) of the body (2) are both located substantially directly over said transverse central line, said weight (14) being movable from side to side across the centre of gravity of the body (2) to effect rocking of the body (2) on the support rockers (7).

2. A rocking unit (1) as claimed in claim 1, characterised in that said body (2) has a cradle support (5) for each of two spaced, axially aligned perambulator wheels (20).

3. A rocking unit (1) as claimed in claim 2, characterised in that said body (2) comprises a central part (3) having, on each side thereof, a support member (4), each support member (4) having a cradle support (5) and a support rocker (7) associated therewith.

4. A rocking unit (1) as claimed in claim 3, characterised in that the central part (3) carries the weight (14) and drive means (15).

5. A rocking unit (1) as claimed in any preceding claim, characterised in that said support rockers (7) each have a profile comprising two substantially flat surfaces (9) diverging upwardly from a central, arcuate interconnecting part (10) of the rocker surface located substantially on said transverse central line.

6. A rocking unit (1) as claimed in any preceding claim, characterised in that said support rockers (7) are located inwardly of the extremities (11) of the body (2).

7. A rocking unit (1) as claimed in any preceding claim, characterised in that said weight (14) is movable in a circle about an upwardly extending axis.

8. A rocking unit (1) as claimed in claim 7, characterised in that said weight (14) is supported at a radially outer position by a support wheel (16) engaging a support surface (12) associated with the body (2).

9. A rocking unit (1) as claimed in claim 7 or 8, characterised in that said weight comprises an electric motor (14) constituting said drive means.

10. A rocking unit (1) as claimed in claim 9, characterised in that said motor (14) is rotatable about said upwardly extending axis with its own axis being at right angles thereto.

11. A rocking unit (1) as claimed in any preceding claim, characterised in that said drive means are electrically operated either through a battery or mains electrical supply.

12. A rocking unit (1) as claimed in any preceding claim, characterised in that the unit (1) further comprises control circuitry, which circuitry includes an adjustable timer for terminating operation of the unit (1).

13. A rocking unit (1) as claimed in claim 12, characterised in that said control circuitry includes a sound operated switch (23) for activating the unit.

14. A rocking unit (1) as claimed in any preceding claim, characterised in that the unit (1) includes a musical box (24) or other source of music.
Patentansprüche

1. Schaukeleinheit (1), die zur Kopplung mit einem Kinderwagen (19) ausgebildet ist, wobei die Einheit (1) einen Körper (2), ein zur Schwingung geeignetes Gewicht (14) für die Erzeugung einer Schaukelbewegung sowie eine Antriebseinrichtung (15) zur zyklischen Erzeugung einer derartigen Bewegung des Gewichts (14) umfaßt, dadurch gekennzeichnet, daß der Körper (2) zumindest eine Wiegenstütze (5) für ein Kinderwagenrad (20) aufweist und auf dafür vorgesehenen Wippstufen (7) abgestützt ist, durch die der Körper (2) um eine Quermittelechse schaukeln kann, wobei ein unterer Bereich der oder jeder Wiegenstütze (5) und der Gravitationsschwerpunkt (8) des Körpers (2) beide im wesentlichen direkt über der Quermittelechse angeordnet sind, wobei sich das Gewicht (14) von einer zur anderen Seite über den Gravitations schwerpunkt (8) des Körpers (2) bewegen kann, um eine Schaukelbewegung des Körpers (2) auf den Wippstufen (7) zu bewirken.

2. Schaukeleinheit (1) nach Anspruch 1, dadurch gekennzeichnet, daß der Körper (2) eine Wiegenstütze (5) für jedes von zwei beistehenden, axial zueinander ausgerichteten Kinderwagenräder (20) aufweist.

3. Schaukeleinheit (1) nach Anspruch 2, dadurch gekennzeichnet, daß der Körper (2) ein Mittelteil (3) hat, das auf jeder Seite ein Stützglied (4) umfaßt, wobei jedes Stützglied (4) eine damit verbundene Wiegenstütze (5) und eine Wippstufe (7) aufweist.

4. Schaukeleinheit (1) nach Anspruch 3, dadurch gekennzeichnet, daß das Mittelteil (3) das Gewicht (14) und die Antriebseinrichtung (15) trägt.

5. Schaukeleinheit (1) nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Wippstufen (7) jeweils ein Profil aufweisen, das zwei im wesentlichen flache Flächen (9) umfaßt, die von einem im wesentlichen auf der Quermittelechse angeordneten mittleren bogenförmigen Verbindungsteil (10) der Wippflächen nach oben divergieren.

6. Schaukeleinheit (1) nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Wippstufen (7) senkrecht über der äußeren Enden (11) des Körpers (2) angeordnet sind.

7. Schaukeleinheit (1) nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß das Gewicht (14) kreisförmig um eine aufwärts gerichtete Achse drehbar ist.

8. Schaukeleinheit (1) nach Anspruch 7, dadurch gekennzeichnet, daß das Gewicht (14) radial außen von einem Stützrad (16) gestützt ist, das mit einer mit dem Körper (2) verbundenen Stützfläche (12) im Eingriff steht.

9. Schaukeleinheit (1) nach Anspruch 7 oder 8, dadurch gekennzeichnet, daß das Gewicht einen Elektromotor (14) umfaßt, der die Antriebseinrichtung bildet.

10. Schaukeleinheit (1) nach Anspruch 9, dadurch gekennzeichnet, daß der Motor (14) um eine aufwärts gerichtete Achse dreht, wobei dessen eigene Achse rechtwinklig hierzu verläuft.

11. Schaukeleinheit (1) nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Antriebseinrichtung entweder eine Batterie oder eine Netzstromversorgung elektrisch betrieben wird.

12. Schaukeleinheit (1) nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Einheit (1) ferner eine Steuerschaltung umfaßt, welche einstellbare Zeitschaltzeit zur Beendigung des Betriebs der Einheit (1) beinhaltet.

13. Schaukeleinheit (1) nach Anspruch 12, dadurch gekennzeichnet, daß die Steuerschaltung einen durch Geräusche betätigbaren Schalter (23) zur Aktivierung der Einheit umfaßt.

14. Schaukeleinheit (1) nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Einheit (1) eine Spieluhr (24) oder eine andere Musikquelle umfaßt.
Recommandations

1. Dispositif berceau (1) adapté pour être en association avec un landau (19), ledit dispositif (1) comprenant, un corps (2), un poids (14) adapté pour osciller pour créer un mouvement de bascule et un dispositif de commande (15) pour effectuer périodiquement le déplacement du poids (14), caractérisé en ce que ledit corps (2) a, au moins un support (5) en forme de berceau pour une roue (20) de landau et est supporté par des bascules (7) servant de support à celle-ci qui permet au corps (2) de basculer autour d’une ligne centrale transverse, dans lequel une zone la plus basse du ou de chaque support (5) en forme de berceau et le centre de gravité (8) du corps (2) sont situés tous les deux essentiellement directement sur ladite ligne centrale transverse, ledit poids (14) étant déplaçable de part et d’autre du centre de gravité du corps (2) pour effectuer le basculement du corps (2) sur les bascules servant de support (7).

2. Dispositif berceau (1) selon la recommandation 1, caractérisé en ce que ledit corps (2) a un support en forme de berceau (5), pour chacune des deux roues (20) du landau espacées, alignées axialement.

3. Dispositif berceau (1) selon la recommandation 2, caractérisé en ce que ledit corps (2) comprend une partie centrale (3) ayant, de chaque côté de celui-ci, une pièce de support (4), chaque pièce de support (4) ayant un support en forme de berceau (5) et une bascule servant de support associée à celle-ci.

4. Dispositif berceau (1) selon la recommandation 3, caractérisé en ce que la partie centrale (3) comporte le poids (14) et le dispositif de commande (15).

5. Dispositif berceau (1) selon l’une quelconque des recommandations précédentes, caractérisé en ce que les dites bascules servant de support (7) ont chacune un profil comprenant deux surfaces (9) essentiellement planes divergent vers le haut à partir d’une partie de liaison arquée centrale (10) de la surface à bascule située essentiellement sur ladite ligne centrale transverse.

6. Dispositif berceau (1) selon l’une quelconque des recommandations précédentes, caractérisé en ce que les dites bascules servant de support (7) sont situées à l’intérieur de l’extrémité (11) du corps (2).

7. Dispositif berceau (1) selon l’une quelconque des recommandations précédentes, caractérisé en ce que ledit poids (14) peut se déplacer le long d’un cercle autour d’un axe s’étendant vers le haut.

8. Dispositif berceau (1) selon la recommandation 7, caractérisé en ce que ledit poids (14) est supporté sur une position externe s’étendant radialement par une roue de support (16) en contact avec une surface de support (12) associée avec le corps (2).

9. Dispositif berceau (1) selon la recommandation 7 ou 8, caractérisé en ce que ledit poids comprend un moteur électrique (14) constituant le dispositif de commande.

10. Dispositif berceau (1) selon la recommandation 9 caractérisé en ce que ledit moteur (14) peut tourner autour dudit axe s’étendant vers le haut, son axe propre étant à angle droit avec celui-ci.

11. Dispositif berceau (1) selon l’une quelconque des recommandations précédentes, caractérisé en ce que ledit dispositif de commande fonctionne électriquement soit grâce à une pile soit grâce au réseau électrique principal.

12. Dispositif berceau (1) selon l’une quelconque des recommandations précédentes, caractérisé en ce que le dispositif (1) comprend en outre des circuits de commande, lesquels circuits comprennent une minuterie réglée pour arrêter le fonctionnement du dispositif (1).

13. Dispositif berceau (1) selon la recommandation 12 caractérisé en ce que ledit circuit de commande comprend un commutateur activé de façon sonore (23) pour mettre en route le dispositif.

14. Dispositif berceau 1 selon l’une quelconque des recommandations précédentes, caractérisé en ce que le dispositif (1) comprend une boîte à musique (24) ou une autre source de musique.