BABY CARRIER ROCKER

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ABSTRACT

An improved portable baby carrier rocking system in which allows almost all existing car seat carriers, baby carriers and baby bassinets to be attached to it. This baby carrier rocker mounts underneath the baby carrier and attaches to it by a simple strap. This baby carrier rocker can be battery operated or powered by an external power supply. It has different rocking speed settings and it will rock any bottom shaped carrier profile from flat to curved. An electric motor drives an offset link in which raises and lowers four supporting arms underneath the baby carrier, thus rocking the carrier back and forth from its center pivoting position. This baby carrier rocker has extendable and retractable legs in which flips out for greater rocker stability. Its novel compact size makes this rocker easily transportable and can be used in small confined areas like in restaurants, camping tents, in crowded rooms, areas etc.
FIG. 3
FIG. 9A

FIG. 9B
FIG. 9C
BABY CARRIER ROCKER

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a non-provisional application of Applicant’s provisional application Ser. No. 61/401,408 filed on 13 Aug. 2010.

BACKGROUND OF INVENTION

[0002] Existing baby swings and rockers today have several problems in which limits their usage or accessibility. They are either large in size in which makes them difficult to carry, occupies too much floor area, or they cannot suit most existing car seat carriers, baby carriers, or baby bassinets. The basic swing is a very useful and important device for babies and is used in almost every baby’s household. The problem today is being able to bring this rocking action to a tight location like at a restaurant, in a camping tent or trailer or in a tight public area. Also to have it small in size in order to be able to carry it on you in a small bag, thus leaving your arms free. Most rocking or swinging apparatus are large in size and many do not accept all types and styles of existing car seat and baby carriers. This is also a problem due to many families owning more than one type of baby carrier. Also today portable baby bassinet are becoming more popular and there are few existing methods for rocking them with a portable device.

[0003] Some existing so called “portable” swings or rockers are designed the same as the original larger common swings, but made smaller. Some of these designs do fold partly, but normally very little. Commonly the two swing side frames fold together. All these folding swings normally do not accept third party baby carriers or bassinets. They either do have a built in one, in which is big and bulky, or they can only accept their own brand name type. U.S. Pat. No. 7,037,205 B1 and U.S. Pat. No. 6,857,966 B2 and U.S. Pat. No. 6,520,862 B1 and U.S. Pat. No. 6,343,994 B1.

[0004] There have been a few other types of rockers such as ones that have a movable platform in which one end is fixed and the other end moves up and down. This does not produce a “rocking” affect as you’re only lifting one end up and down. To achieve a true rocking motion, both ends should move up and down opposite to each other. U.S. Pat. No. 6,574,806 B1 and U.S. Pat. No. 4,985,949 and U.S. Pat. No. 3,992,731 and U.S. Pat. No. 4,656,680 and U.S. Pat. No. 3,653,080.

[0005] Another existing system is by gliding a flat surface horizontal to the floor, thus a back and forth motion. Again, this is not a “rocking” motion as with this novel invention here.

[0006] This new novel idea, rocks the baby seat carrier or bassinet from underneath, pivoting around a centre point, at the centre of the baby carrier, rocking it equally in both directions in an up and down motion.

[0007] The foregoing has outlined some of the more pertinent objects of the invention. These objects should be construed to be merely illustrative of some of the more prominent features and applications of the intended invention. Many other beneficial results can be attained by applying the disclosed invention in a different manner or by modifying the invention within the scope of the disclosure. Accordingly, other objects and a fuller understanding of the invention may be had by referring to the summary of the invention and the detailed description of the preferred embodiment in addition to the scope of the invention defined by the claims taken in conjunction with the accompanying drawings.

BRIEF SUMMARY OF THE INVENTION

[0008] Accordingly, the after mentioned problems and difficulties are obviated by the present invention. This is a novel baby carrier rocker in which all types of baby carriers and bassinets attach to the top of it and it will rock it back and forth at different predetermined speeds. It is small in size, easily portable, and is stable due to its folding and retractable legs.

[0009] Therefore it’s among the primary objectives of this invention to be mounted underneath and to accept existing car seats, baby carriers and most portable baby bassinets.

[0010] A second object of this invention is to be physically as small as in size as possible for easily carried and transported. Also to occupy the least amount of space when operating in small or restricted space areas.

[0011] A third objective of this present invention is to have its legs and attachments easily foldable without the use of any tools and/or the removal of any pieces.

[0012] A forth objective of this invention is for there to be no adjustments necessary to adapt for different baby carrier styles and configurations.

[0013] A fifth object of this rocking device is to maintain a minimum baby carrier height above the rocking surface.

[0014] A sixth object is to rock the baby carrier from its centre position and not from just one end, thus creating a natural up and down rocking motion.

[0015] Another objective is for this rocking device to accept all types of carrier bottom profiles, regardless if its curved or straight in nature.

[0016] Still another objective of this invention is not to have any overhead obstruction above the carrier in order to have full access and maximum visibility of the baby.

[0017] A last objective is to have several predetermined rocking speed settings and to be able to accept rechargeable batteries or regular batteries and/or from an external plug in power supply or from a car battery system.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The present invention, with respect to its organization and manner of operation, together with further objects and advantages thereof, may be best be understood by reference to the following description, taken in connection with the accompanying drawings in which:

[0019] FIG. 1 is a general front-side isometric view of the invention with a typical baby seat carrier attached.

[0020] FIG. 2 is a front-side isometric view of the invention in its closed and folded position.

[0021] FIG. 3 is a front-side isometric view of the invention in its open position.

[0022] FIG. 4 is a side view of the invention with a typical baby seat carrier attached to it.

[0023] FIG. 5 is an isometric view with a cutout showing the insides and drive of this invention.

[0024] FIG. 6A is a side view showing how the bottom of a typical curved baby seat carrier rests and is supported on top of the two LH. And RH. Arms.

[0025] FIG. 6B is a side view showing how the bottom of a notched out baby carrier with a flat profile bottom is sitting and being supported by the LH. And RH. Arms.
FIG. 6C shows an isometric bottom profile view of a typical baby carrier sitting on rubber grip pads.

FIG. 7 shows an isometric bottom view of a typical baby carrier with Velcro pads adhered to its bottom profile and to the L.H. and RH. Arms.

FIG. 8A shows an isometric view of the invention with an add on baby bassinet support bracket attached to the top of the L.H. and RH. Arms.

FIG. 8B shows a side view of the invention with a typical baby bassinet attached to its bassinet support bracket to the top of it.

FIG. 8C shows an isometric view of FIG. 8B.

FIG. 9A shows a top and side view of a typical Bassinet support frame in its extended position.

FIG. 9B shows an isometric view of the Bassinet frame in the half way folded position for storage.

FIG. 9C shows another version of an isometric view of a Bassinet collapsible frame with pivoting links.

DETAILED DESCRIPTION OF THE INVENTION

FIG. 1 shows an isometric view of a typical baby seat carrier 15, attached to the top of the invention of the baby carrier rocker. The baby seat carrier 15 sits on and being supported by four swivel arms 8 and 9. A strap 13, attached to the two strap slots 50 on the two sides of the rocker plate 27, are placed around the baby seat carrier. 15, and through its two existing buckle slots 41 and connected together by a cam buckle 28. Any other kind of attachment device could be used instead of using the cam buckle 28. This strap 13 then is tightened, and thus fixing the [carrier seat] baby seat carrier 15 to the four arms 8 and 9 below. Another adjustable strap combination not shown here, could be to add a strap from the front of the roller plate 27, to the front of the baby seat carrier 15, and another strap from the roller plate 27 to the rear of the baby seat carrier 15 for greater stability and security. The baby carrier rocker has two extendable front legs 3, and two side legs 5 for added stability to this rocking system shown here in its extended/operating position. There is a power on/off switch 19 mounted on the side of this baby carrier rocker that has three positions in which two different rocking cycle rates could be selected. Any type of selector switch or Potentiometer could be used with more speed settings instead of this switch 19. Beside this on/off switch 19, there is a power jack 22. This power jack 22 is used to accept external power sources, such as but not limited to wall transformers, power adaptors, car cigarette power outlets and remote battery supplies.

FIG. 2, shows an isometric view of the baby carrier rocker in its folded/collapsed position. Here the side legs 5 are folded into the side of the frame 1. Then the two front legs 3 are folded backwards around the center axis of the fixing of front leg pin 4, into the frame 1 as shown. The leg notch 42 in the front leg 3, slides inside the leg notch 42 in the side leg 5, thus preventing the side leg 5 from accidentally folding outwards during transport.

Both the L.H. 9 Arms and the RH. Arms 8, swivel around the center axis of the arm pins 11. These arms 8 and 9 are locked into place by a clamp block 12 located in between them. The clamp block 12 is slid upwards by placing the tip of your finger inside of the notch 51, thus allowing the arms 8 and 9 to rotate around the arm pin 11. Then the clamp block 12 is pressed back against the rocker plate 27, thus binding the arms 8 and 9 into position. Each arm 8 and 9 does have a rubber grip pad 10 adhered to the top of them. These grip pads 10 will come into contact with the baby seat carrier 15 as shown in FIG. 1. The rocker plate 27, does rock back and fourth along the center axis of the rocker plate pin 24. These two rocker plate pins 24, opposite to each other, are rigidly attached to the frame 1.

FIG. 3, shows an isometric view of the baby carrier rocker in its open, operational position. Here the two front legs 3 are pivot around the front leg pin 4, to its forward position. Then the side legs 5 are pivoted outwards to 90 degrees to the frame 1. Other obvious methods of extending these legs could be used such as sliding them outwards or removing them and snapping or fastening them into position. Then the two clamp blocks 12 are lifted upwards, by placing the tip of your finger inside of the notch 51, away from the rocker plate 27, thus allowing all four arms 8 and 9 to rotate outwards around each arm pin 11 respectively. Once these arms 8 and 9 are in there outwards, perpendicular position with the rocker plate 27, the two clamp blocks 12 are then pressed downwards making contact to the rocker plate 27. These four arms 8 and 9 are now locked into position. Other methods of extending and locking the four arms 8 and 9 could be used, like snapping them into position; sliding them; having them removable or fastening them into either the open or closed position. The general concept still remains the same of being able to extend the arms 8 and 9 outwards then being able to collapse them again.

FIG. 4, shows a rear side view of FIG. 3. A notched out baby carrier 43 is attached by the strap 13 to the four arms 8 and 9.

The rocker plate 27, pivots around the two rocker pin 24. This rocking action raises and lowers both ends of the rocker plate 27, as shown by the rocker angle 45.

This rocking action will in turn also rock the notched out baby carrier 43 back and fourth. Under the frame 1, there is a clearance 46, in which only the two front legs 3 and the side legs 5 do make contact with the supporting surface 47. This clearance 46 allows the supporting surface 47 to be uneven, or not perfectly flat. Also this clearance 46 ensures that both the front legs 3 and side legs 5 are in contact with the supporting surface 47 for maximum stability. Both ends of the straps 13 are rigidly fixed to the rocker plate 27 through the strap slot 50.

FIG. 5, shows a breakaway isometric view of the baby carrier rocker invention. Here it’s in its open, operational configuration with all its legs 3 and 5, and its arms 8 and 9 in the outwards, extended position. Inside shown is an electric gear motor 20, in which is mounted to its motor support 18 in which is mounted to its base 2. The base 2 is the bottom of this invention. At the rear of the base 2, there is a battery cover 7 in which is removable. This battery cover 7, retains the removable battery pack 23 in which is housed inside of the frame 1. This battery pack 23 can be removed for recharging or for battery replacement. The motor 20 rotates at a predetermined output speed the lift ring 16. The lift ring 16 is fixed to the output shaft of the motor 20. As the lift ring 16 rotates, a fixed lift ring pin 48 also rotates at a pre-determined distance from the center axis of the motor 20 output shaft. The yoke 49 pivots around the center axis of the lift ring pin 48. As the lift ring 16 rotates, the yoke 49 will move upwards and downwards, as it will in turn move the lift pin 14 also upwards and downwards accordingly. The lift pin 14 is fixed to the rocker plate 27, thus when the lift pin 14 moves up and downwards, the rocker plate 27 will also lift upwards and downwards, through the center axis of the two rocker pins 24. In turn this
movement will create a controlled rocking action of the rocker plate 27 and its four arms 8 and 9. The speed of this rocking action is determined by its predetermam or variable speed setting of its switch 19. Also there is a current limiting device with in the circuit in order to safety cut the power to the motor 20 if this invention should get jammed or should tilt over for any reason.

FIG. 6A shows the side view of a typical baby seat carrier seat 15, sitting on top of both the L.H. Arm 9 and the R.H. arm 8. Both of these L.H. Arm 9 and R.H. Arm 8 has a rubber grip pad 10 adhered to them. These two arms 8 and 9 have a sloped top surface to better match the curved rocker bottom profile 33. These grip pads 10 help increase the friction, thus reducing the slippage between the rocker bottom 33 and the two arms 8 and 9.

FIG. 6B, show a side view of another style of a typical notched out baby carrier 43. The principle is the same as in FIG. 6A.

FIG. 6C, shows an isometric view of FIG. 6A.

FIG. 7, here shows another method of preventing a typical baby seat carrier 15 from sliding on top of the four arms 8 and 9. Here shows a bottom isometric view of a typical baby seat carrier seat 15, over top of the L.H. Arm 9 and the R.H. arm 8. Both of these arms 9 and 8 do have a layer of hook Velcro 25 adhered to the top of them. A piece of loop Velcro 26 is then adhered to the rocker bottom 33, at the same center distance as the two arms 8 and 9. When the hook Velcro 25 comes in contact with the loop Velcro 26, they do adhere together, thus preventing the rocking bottom 33 from sliding or moving on top of the two arms 8 and 9.

FIG. 8A, shows an isometric view of the baby carrier rocker assembly with a typical bassinet adaptor frame 35 attached to it. This bassinet adaptor frame 35, is flat and has an end stop 44 on top either at one end or at both ends of it. This end stop 44 is to prevent the bassinet 34 from sliding forward while rocking.

FIG. 8B, shows the side view of FIG. 8A, but with the bassinet 34 in its proper position. You can see how the end plate 44 is preventing the forward movement of the bassinet 34. A second end plate 44 could also be incorporated into this design on the opposite end of the bassinet adaptor frame 35 as shown. Shown is an adjustable end plate 44 in which can extend, lock and retract to best suite the overall length of the bassinet 34. This type of adjustable end plate could also be used in the front as well.

FIG. 8C, shows an isometric view of FIG. 8A.

FIG. 9A, shows the top and side view of another method of a foldable/collapsible bassinet adaptor frame. Here shown is where a front fold frame 36 and a rear fold frame 37 are attached and hinged together with hinge 40 as show in the open position. The hinge 40 is attached to the bottom of the two fold frames 36 and 37. So when the baby seat carrier 15 is fasten to the top of these frames 36 and 37, the hinge 40 will not be able to fold, thus locked in this open position. Another version for this bassinet adaptor frame is to be made out of at least two pieces, and to be attached by other standard practice methods.

FIG. 9B, shows an isometric view of FIG. 9A being folded/collapse for less space and easy transport and storage.

FIG. 9C, shows an isometric view of another possible version of a foldable bassinet adaptor frame. Here shown are two side bars 39, with pivoting links 38 in between them. When the links 38 are all in line and perpendicular to the side bars 39, then this frame will be in its open position. When all the links 38 are parallel with the two side bars 39, then this frame will be in its closed position.

Please note that here only two different methods of folding this bassinet frame are shown. Many other folding methods could be used, but the concept of a folding/collapsing bassinet frame for easy transport and storage, remains the same.

While the present invention has been described with reference to the above described preferred embodiments and alternate embodiments, it should be noted that various other embodiments and modifications may be made without departing from the spirit of the invention. Therefore, the embodiments described herein and the drawings appended hereto are merely illustrative of the features of the invention and should not be construed to be the only variants thereof nor limited thereto.

1-8. (canceled)
9. A portable and collapsible baby car seat and baby carrier rocker comprising:
   a. of four retractable legs, in which can be extended outwards to lift the rocker if the rod and to increase the rocker stability, and these legs could fold inside bottom of the frame, thus preventing any need for further securing these legs in this position;
   b. of the legs being able to be pivoted and locked outwards, forwards, and 90 degrees from the rocking motion direction from the frame for increased stability and greater sideways support without the need of any tools or the removal of any parts;
   c. of four pivoting and folding arms in which can be extended and locked outwards 90 degrees from the rocker plate, and supports the bottom of different size and styles of baby car seat carriers, bassinets and baby carriers;
   d. of four support arms in which pivots around the arm pins without the use of tools and folds and locks inside of the rocker plate for transport;
   e. of four support arms in which it's ends are sloped to better match the bottom curve profile of a typical baby carrier, thus increasing the surface contact between the sloped bottom surface and baby carrier;
   f. of support arms in which could have non slip rubber or hook and loop grip pads on its sloped end surfaces in order to help prevent the rocking item from sliding off of these arms, hook and loop should also be attached to the bottom surface of the item being rocked for additional grip;
g. of the support arms having sides on their outer edge in order to limit the sideways movement of the item being rocked acting as a positive stop;

h. of a clamp block in which is lifted to physically lock and to act as a wedge in between the two opposite support arms in both the extended and retracted position without the use of tools.

10. A baby rocker comprising of
a. a rocker plate in which pivots around its center and supports the four support arms;
b. a rocker plate in which pivots, and rocks around the center of gravity of the object being rocked, thus reducing the power requirements of the motor and battery consumption;
c. a rocking plate in which is connected by a motor and yoke near one end in which lifts and lowers this rocker plate, thus rocking it back and forth;
d. an electric motor in which is variable speed and can be stopped and started from any angle or position with in its rocking range that positively drives the rocker plate in both the up and downwards position by a yoke towards one end of the rocking plate;
e. an electric motor in which will maintain a constant positive rocking speed regardless of any allowable rocking weight changes or with blankets added and which will stop turning if it stalls, or if the rocker should tilt or flip over;
f. an adjustable quick release safety strap connected to each side of the rocker plate, and follows the same path of a typical car-seat seat-belt, and is also used for attaching a baby bassinet, and a front and back adjustable strap could be attached to the rocker plate in this same way although not shown here, this strap could be attached by a buckle, by hook and loop, or by any other common attachment method.

11. A baby rocker comprising of:
a. a low profile frame in which maintains a low center of gravity of the item being rocked, as low to the ground as possible, thus increasing the rocking item stability and the baby safety;
d. having the capability of stopping and locking the rocking motion at any position with in its rocking range, thus allowing different fixed seat angles to better facilitate feeding, sleeping the baby, and for playing etc.;
e. a bassinet adapter frame in which attaches on top of the rocker plate support arms in its open position in which a baby bassinet, or any other type of baby carrier, stability and the baby safety;

f. the same strap as in claim 10 attaching over the baby bassinet securing it to the bassinet adapter frame and to the four rocker support arms;

g. a bassinet adapter frame with fixed end plates on both opposite ends, to help stop the bassinet from sliding forward or backwards during rocking, or yet another method is adjustable end plates in which are lockable, and could be extended or retracted in the forward and rear rocking position as required;

h. a bassinet adapter frame that is hinged and can be folded onto itself for easy transport and storage, or another method of folding a bassinet adaptor frame is by having pivoting links in which folds into its self.

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