COMMONWEALTH OF AUSTRALIA

Patents Act

APPLICATION FOR A PATENT

I/We (a) JOLLY JUMPER PRODUCTS OF AMERICA LIMITED

62,427/73

of (c) 144 Water Street South, Cambridge, Ontario
Canada N1R 3E2

hereby apply for the grant of a Patent for an invention entitled

MOUNTING FOR BABY EXERCISER

which is described in the accompanying (e) complete specification.

(Note: The following paragraph applies only to Convention applications)

This application is a Convention application and is based on the basic application(s) for a patent or similar protection identified by number, country, and filing date as follows:

Canada, Serial No. 163,177
filed January 31, 1973

Address for Service:

PHILLIPS, ORMONDE AND FITZPATRICK
Patent and Trade Mark Attorneys
37-41 Queen Street,
Melbourne, Australia

Dated (o) October 24, 1973

[a] Robert John Cockburn

Note: No signature or other witness required
DECLARATION FOR A PATENT APPLICATION

In support of the (a) Convention application made by (b) JOLLY JUMPER PRODUCTS OF AMERICA LIMITED, a Company incorporated under the Laws of the Province of Ontario.

(hereinafter called "applicant(s)") for a patent (c) MOUNTING FOR BABY EXERCISER

I/We (a) Robert John Cockburn, a Citizen of Canada, Secretary-Treasurer of and care of JOLLY JUMPER PRODUCTS OF AMERICA LIMITED

do solemnly and sincerely declare as follows:

1. I am/We are the applicant(s).

   (or, in the case of an application by a body corporate)

   1. I am/We are authorized to make this declaration on behalf of the applicant(s).

2. I am/We are the actual inventor(s) of the invention.

   (or, where the applicant(s) is/are not the actual inventor(s))

2. (f) Robert John Cockburn, of 2040 Marine Drive, Oakville, Ontario, Canada is/are the actual inventor(s) of the invention and the facts upon which the applicant(s) is/are entitled to make the application are as follows:

(a) The applicant is the assignee of the said invention from the actual inventor by virtue of an assignment dated the 22nd day of October, 1973.

(Note: Paragraphs 3 and 4 apply only to Convention applications)

3. The basic application(s) for patent or similar protection on which the application is based is/are identified by country, filing date, and basic applicant(s) as follows:

   (b) Canadian application Serial No. 163,177, filed January 31, 1973 by Jolly Jumper Products of America Limited.

4. The basic application(s) referred to in paragraph 3 hereof was/were the first application(s) made in a Convention country in respect of the invention the subject of the application.

Declared at (a) Toronto, Oct 22, 1973
Dated (b) Oct 22, 1973

To: The Commissioner of Patents
The following statement is a full description of this invention, including the best method of performing it known to applicant(s):
This invention relates to baby exercisers. In particular this invention relates to a baby exerciser of the type wherein an infant is suspended in a harness and permitted to bounce vertically and rotate about a vertical axis.

Baby exercisers such as those described in Canadian Patent No. 568,775, January 13, 1959 and Canadian Patent No. 679,352 dated February 4, 1964 are well known. In these devices, the child is seated in a harness which is suspended by means of a metal spring or an elastomeric spring from a permanently mounted hook or from a door jamb. Because of the fact that the upper end of the suspension device is located at a substantial height, it is possible to use a vertically extending spring of a substantial length as the suspension means. Because the spring has a substantial length, it is capable of providing a gentle extension and contraction.

These known devices are not fully portable in that they can only be employed where a suitable suspension hook or door jamb is available.

Whereas it is acknowledged that a device capable of permitting the vertical bouncing might be provided by employing a conventional portable swing type frame construction, it has been found that a device of this type is of limited value. When attempting to construct a baby exerciser using the practices employed in suspending a swing seat, it has been proposed to replace the inextensible cords which support the seat portion of the existing baby exerciser with extensible spring or elastomeric members, the other ends of which are connected to the cross bar of a conventional frame.
The difficulty with this construction is that the child is not permitted to turn through more than a few degrees without causing twisting of the suspension as occurs in a conventional swing when children attempt to obtain a spinning action. This action is particularly undesirable and can result in injury to a child and, to alleviate this danger, it has been the practice to provide a rigid horizontally extending spacer bar disposed above the inextensible suspension cords of the known harness construction. The fact that the known constructions do not permit a child to rotate freely about a vertical axis when suspended from a portable frame limits the value of these devices. The child tends to become irritated when not able to rotate freely so as to follow the movement of adults about the frame. Young children attempt to keep their parents in view and will make efforts to turn in the suspension device when the parents move relative to the frame.

If a portable frame is to be proportionately sufficiently small to permit it to be moved with ease, it is not possible to suspend the conventional harness from a vertically extending elastomeric member as is the common practice in the door jamb mounted or hook mounted application. The difficulty is that the vertical spring or elastomeric member would have to be considerably limited in length so that it would not be possible to obtain a gentle bouncing action while obtaining the degree of movement required in order to respond to the kicking action of the child.

The present invention overcomes the difficulties of the prior art described above and provides a portable frame mounted exerciser of a reasonable height having sus-
pension means for providing a gentle bouncing action and hanger means for supporting the harness to permit the child to rotate about a vertical axis when seated in the harness.

According to an embodiment of the present invention, the body exerciser comprises elastic suspension means extending between spaced apart ends which are secured to dispose the elastomeric suspension means in a horizontal plane and hanger means depending from the suspension means intermediate the ends thereof, the hanger means having a vertically disposed axis about which the harness means is free to rotate. The harness means includes a spacer bar carried by the hanger means and a means for supporting a child in an upright position.

According to a further embodiment of the present invention the elastomeric suspension means is in the form of an elastomeric cord which is horizontally disposed with its ends secured to a horizontal support bar of a portable frame.

The invention will be more clearly understood after reference to the following detailed specification read in conjunction with the drawings wherein

Figure 1 is a pictorial view of a baby exerciser according to an embodiment of the present invention.

With reference to the drawings, the reference numeral 10 refers generally to a baby exerciser according to an embodiment of the present invention. The exerciser includes a portable frame 12 and a harness 14. The frame 12 consists of two U-shaped tubular members 16 which have horizontally extending support bars 18 connected together
by means of bolts 20. Legs 22 are releasably connected at the lower ends of the U-shaped members 16. The connection is achieved by reducing the diameter of the legs 22 at their ends so that they are adapted to fit within the vertical legs of the U-shaped members 16 with button-like elements 24 projecting through suitable openings in the legs 16. The legs 22 are removed by depressing the buttons 24 and withdrawing the legs 22 from the vertical portions of the U-shaped members 16. Releasable brace plates 26 extend between the adjacent vertically extending portions of the U-shaped members 16 and serve to retain the legs in the required spaced relationship in use.

An elastomeric suspension cord 28 has a lug 30 mounted at each end thereof. Each lug 30 has a passage (not shown) at its outer end for receiving the bolt 20 so that the lugs 30 pivotally mounted with respect to the cross bar members 18 and disposed therebetween and extending downwardly therefrom. The lugs 30 may be in the form of a metal sleeve adapted to extend around the end of the elastomeric member 28, the sleeve thereafter being crimped into a fixed clamping relationship with respect to the elastomeric member 28.

The elastomeric member 28 is preferably made from a cord of elastomeric material consisting of a plurality of strands of an elastomer extending in a longitudinal laminated relationship and coated with a braided fabric cover. A suitable elastomeric suspension cord is known in the trade as a "shock cord" and is sold by Spae-Naur Products (1969) Limited of Kitchener, Ontario. This elastomeric cord is capable of elastic extension up to
twice its original length and it has been found that a cord measuring about 1/2 inch in diameter and 2 feet in length is a suitable suspension device for use in the present invention.

The hanger assembly 32 depends from the suspension cord 28. The hanger assembly 32 includes a swivel connector 34 which has an eyelet member 36 adapted to fit in a free-fitting sliding relationship about the cord 28 and self-locking hook member 38 which is free to pivot about a vertical axis through 360° of rotation. A chain 40 is releasably suspended from the hook 38 and secured at its lower end to suspension cord 42. The suspension cord 42 is preferably secured to the chain 40 by means of a knot tied in the cord 42 so that the chain will be located centrally of the length of the cord 42. The opposite ends of the cord 42 are secured to the transverse spacer bar 44. The harness 14 also includes a seat portion 46 which is suspended from the crossbar 44 by cords 48.

When the exerciser of the present invention is to be used, the harness 14 including the chain 40 is removed by releasing the chain 40 from the hook 38 and a child is strapped into the seat or saddle portion 46. The construction of a suitable seat or saddle portion 46 is explained in detail in Canadian Patent No. 679,352. The chain is then reconnected to the hook 38 in which position the child is suspended with its feet resting gently on the surface below the support stand. The child is now free to bounce up and down in the direction of the arrow A or to rotate about the vertical axis of the swivel 34 in the direction of the arrows B. Vertical bouncing in the direction
of the arrow A causes the elastomeric cord to stretch to the configuration shown in broken lines in Figure 1. It will be noted that in order to obtain an extension in the direction of the arrow A equal to half the length of the cord 28, the angle will be $45^\circ$. Where the angle is $45^\circ$, the actual length of the extension of the half of the cord will be $2'' \times$ the original half length of the cord; that is to say, it is possible to obtain a vertical movement which is greater than the actual extension of the cord by reason of the fact that the cord is not being subjected to a direct pull. In addition, because the hanger assembly is connected to the centre of the length of the cord, the transverse cord acts as if it were two separate supporting cords each carrying half of the load. For this reason, it is possible to make the cord 28 of a more readily yieldable material than the material of which the conventional vertical suspension cord is made. This gives the child a more gentle bouncing action.

Because of the fact that it is possible to support the harness from the transversely extending suspension bar 28 which is positioned closely adjacent the rigid transverse support bars 18 of the frame, it is possible to construct the portable frame in such a way that it is not excessively tall. For example, it has been found that a frame having an assembled height of the order of about 3 feet 6 inches, a width of about 3 feet and a leg spread of about 2 feet 9 inches may be used to support an infant and permit vertical bouncing of about 9 inches deflection from the original horizontal position of the suspension bar 28.

From the foregoing, it will be apparent that the
baby exerciser of the present invention employs a frame which is relatively low-slung and, therefore, stable while providing a substantial vertical movement and permitting freedom of rotation about a vertical axis.

Various modifications of the present invention will be apparent to those skilled in the art without departing from the scope of the invention. For example, the eye of the swivel may be secured centrally of the length of the suspension cord 28. This would prevent movement of the hanger assembly longitudinally of the suspension cord 28 and thereby maintain a uniform load distribution in the two sections of the cord 28 which extend from the eye. In addition, it will be apparent that various forms of harness may be carried by the hanger. It will be apparent that a conventional swing seat may be suspended from a transverse support bar which is in turn suspended from the hanger assembly of the present invention so as to provide a conventional swing which will have the added advantage of providing a degree of bounce and the freedom to rotate about a vertical axis. It will also be apparent that the elastic suspension device may be in the form of a coil spring rather than the elastomeric cord previously described.
The claims defining the invention are as follows:

1. A baby exerciser comprising
   (a) elastic suspension means extending between spaced apart ends,
   (b) means for securing said ends in a spaced relationship with said suspension means horizontally disposed,
   (c) hanger means depending from said suspension means intermediate said ends, said hanger means having a vertically disposed axis,
   (d) horizontal spacer means carried by said hanger means for rotation about said vertically disposed axis of said hanger, and
   (e) harness means depending from said spacer bar to support a child in an upright position wherein the child may bounce up and down by vertically flexing said suspension means and turn about said vertical axis of said hanger means.

2. A baby exerciser as claimed in Claim 1 wherein said elastomeric suspension means is in the form of an elastomer member.

3. A baby exerciser as claimed in Claim 2 wherein said elastomeric member is formed from a plurality of strands of an elastomer having a woven fabric coating extending thereabout.

4. A baby exerciser as claimed in Claim 1 wherein said means for securing said ends in a spaced apart relationship comprises a support frame consisting of horizontal bar means and leg means for supporting said horizontal bar means at a substantial height.
5. A baby exerciser as claimed in Claim 4 including lug means at opposite ends of said elastic suspension means, said lug means being pivotably mounted with respect to said frame means.

6. A baby exerciser as claimed in Claim 1 wherein said hanger means includes swivel joint means for permitting free rotation about said vertical axis through an arc of 360°.

7. A baby exerciser as claimed in Claim 4, 5 or 6 wherein said suspension means is in the form of an elastomeric cord.

DATED: 8th November, 1973

JOLLY JUMPER PRODUCTS OF AMERICA LIMITED
By its Patent Attorneys:
PHILLIPS ORMONDE AND FITZPATRICK