2003

PATENT ATTORNEYS

EXAMINATION

PAPER E

Patent Attorney Practice in New Zealand
including the Interpretation and Criticism
of Patent Specifications

Regulation 158 (1) (e)

Duration: 4 hours (plus 10 minutes for reading).

PAPER E

2003

PATENT ATTORNEYS EXAMINATION

PATENT ATTORNEY PRACTICE IN NEW ZEALAND INCLUDING THE INTERPRETATION AND CRITICISM OF PATENT SPECIFICATIONS

All questions should be attempted.

Time allowed: 4 hours (plus 10 minutes for reading)

Candidates are required to give reasons for their answers. The marks awarded depend on the reasoning displayed rather than the particular conclusions reached. Candidates should discuss fully all issues which appear to them might reasonably arise (even though some of the issues might not have to be decided if the candidate's conclusions on other issues should be correct). Candidates should presume that they are giving their advice to the client on the date of the examination.

Candidates should not write a précis of each specification referred to or of its claims. If part of a specification needs to be referred to it should be done by page/line or column/line references. The prior art may be referred to by number. Case law need not be detailed as marks are awarded only for a clear statement of the points of interpretation of the client's invention and the patent at issue, the prior art considered, and for the reasoning leading to the conclusions reached.

INSTRUCTIONS TO CANDIDATES

You are approached to act for Big Beautiful Bouncing Baby Limited ("4B Limited"), a New Zealand company. 4B Limited have come up with what they believe is a particularly innovative and safe child amusement device. They have invested heavily in design and manufacturing The 4B product ("the 4B Bouncer") is described in **Attachment A** (1 page of text, 3 figures).

The 4B Bouncer went on the market a month ago and 4B have sold about 50 of them through outlets in Auckland and Wellington and have received numerous further orders.

4B Limited have approached you because they have received a letter, from Awkward, Inc. ("A Inc."), a US corporation (**Attachment B**).

You have your searchers obtain a copy of the complete specification of New Zealand patent No. 111111 (**Attachment C**). The IPONZ records indicate that NZ Patent No. 111111 was published on 28 February 1998 and sealed on 1 July 1998. The complete was filed on 6 March 1997 based on a provisional application filed 7 March 1996. You check the provisional and ascertain that the text is identical to the body of the specification for the complete. NZ 111111 is shown as current and renewed.

Your searchers also advise you, however, that there is a US equivalent to this patent, US 5,690,383 (**Attachment D**) published in New Zealand on 23 December 1997.

Before providing your client with some initial advice, you carry out some prior art searching, which turns up US 5,201,693 (**Attachment E**), and also an abstract of a Japanese patent No. 666666 (**Attachment F**).

US 5,201,693 was publicly available in New Zealand on 13 May 1993. Abstract No. 666666 was published in New Zealand on 4 November 1980. The relevant patent does not appear to have been published in New Zealand in any other form that you can readily locate.

You also ask 4B Limited if they are aware of any other similar items which were around before 1996.

4B's director says that when she first became interested in the baby product market in about 1995, she saw a product in America called a Megasaucer. An online search turns up a website advertising the Megasaucer (**Attachment G**). 4B's director says she was sent a sample of the Megasaucer sometime in 1995 by its manufacturer, but was asked to keep it confidential as it was not yet released in New Zealand. They still have the sample, which is labelled "Manufactured under licence from Awkward, Inc., USA, © 1994".

To assist in your analysis, your assistant prepared a chronology of events (**Attachment H**).

Please prepare notes in order to advise your client on the following matters:

1. (a) The scope of New Zealand patent 111111; and

   (b) Whether your client's new product is an infringement.

50 marks

2. Whether any of the claims of NZ 111111 are likely to be held invalid, including any additional investigations you would suggest.

30 marks

3. Whether Awkward, Inc. could amend NZ 111111 in any way to strengthen its position.

10 marks

4. Whether in view of the facts that you have been given there are any other causes of action available to either party, and anything your client might do to improve its commercial position.

10 marks

Total: 100 marks

Attachments

A. New product specification from Big Beautiful Bouncing Baby Co. Limited – 1 page plus 1 sheet of drawings, figures 1-3.

B. Letter from Awkward, Inc. to Big Beautiful Bouncing Baby Co. Limited

C. NZ patent 111111 of Awkward, Inc. – 9 pages plus 4 sheets of drawings, figures 1-11.

D. US patent No. 5,690,383 – title page, 4 sheets of figures plus 3 pages of text (columns 1-6).

E. US patent No. 5,201,693 – title page, 2 sheets of figures plus 3 pages of text (columns 1-6).

F. Abstract of Japanese patent No. 666666 – 1 sheet including drawing.

G. Printout of excerpt from www.babyuniverse.com website – 2 pages.

H. Chronology

BIG BEAUTIFUL BOUNCING BABY CO. LIMITED **"A"**

OUR NEW PRODUCT : "THE 4B BOUNCER"

Despite a number of efforts to meet the needs of caregivers for exercise and entertainment of infants and very young children, there remains a need for a jumper that has a support frame which remains substantially still on a floor surface, that is adjustable to one of several expanded positions, and that has an easy access seat portion suspended within the support frame.

Figure 1

Our jumper apparatus includes a support frame A which has a U-shaped base leg B with upstanding ends, a cantilevered seat-support leg C mounted upon the upstanding ends of the U-shaped base leg, and a chair seat D suspended from the seat-support leg. The chair seat is suspended from the seat-support leg vertically above the base leg by shock cords E that extend between the chair seat and the connectors F. One end of each cord is coupled to one connector and the opposite end of each cord is coupled to the frame of the chair seat.

Figure 2

The connectors include a circular sleeve portion G and an opposite gripping portion H. The seat-support leg extends through the sleeve portion of each connector to securely fasten them onto the support frame. Moreover, the first end of the shock cord extends through the gripping portion and forms a bulb J held by clamp K within the connector to prevent sliding out from the gripping portion. Further, the second end of the shock cord extends into the chair seat and forms a second bulb L held by clamp M to prevent the cord sliding from the seat.

Figure 3

The seat frame is formed so that the height of the chair may be raised or lowered to accommodate different sizes of children. The seat-support leg is mounted within the upstanding ends of the base leg and a spring-loaded adjustment mechanism is positioned within the seat-support leg so that it may be raised or lowered with respect to the base leg. The adjustment mechanism includes a U-shaped spring N having a locking tab P extending outwardly from one end of the spring. The seat-support leg, which houses the spring, includes a hole Q through which the locking tab extends. In addition, the upstanding ends of the base leg include at least two holes therein which are aligned with the locking tab. Therefore, to adjust the positioning of the seat-support leg, the caregiver must simply push the locking tab into the hole and slide the seat-support leg toward a desirable pre-determined position. Once the locking tab reaches the pre-determined position, it automatically springs back through the hole with which it is aligned to secure the seat-support leg in its new locked position.

From a manufacturer's perspective, a stationary baby jumper like ours is preferable over traditional jumpers because the jumper's shape allows for fast and inexpensive tooling. The use of extensible shock cords also eliminates the need to improve the general appearance of exposed springs by expensive plating and finishes. It is also easy to paint the support frame to any desirable colour.

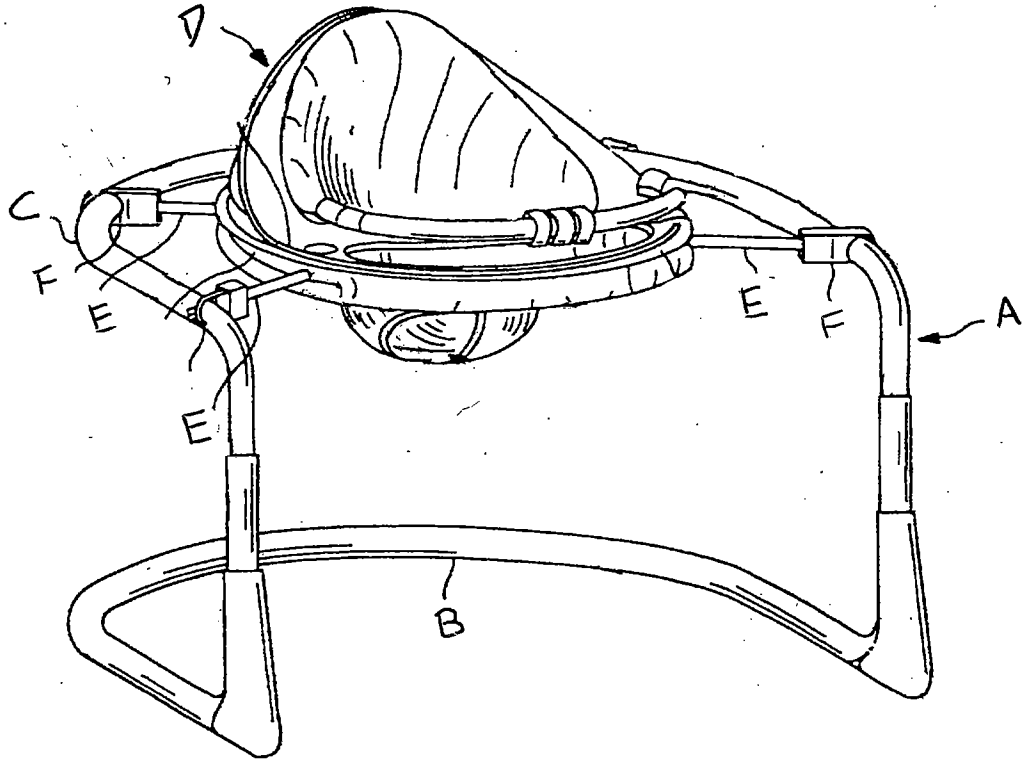

FIG. 1

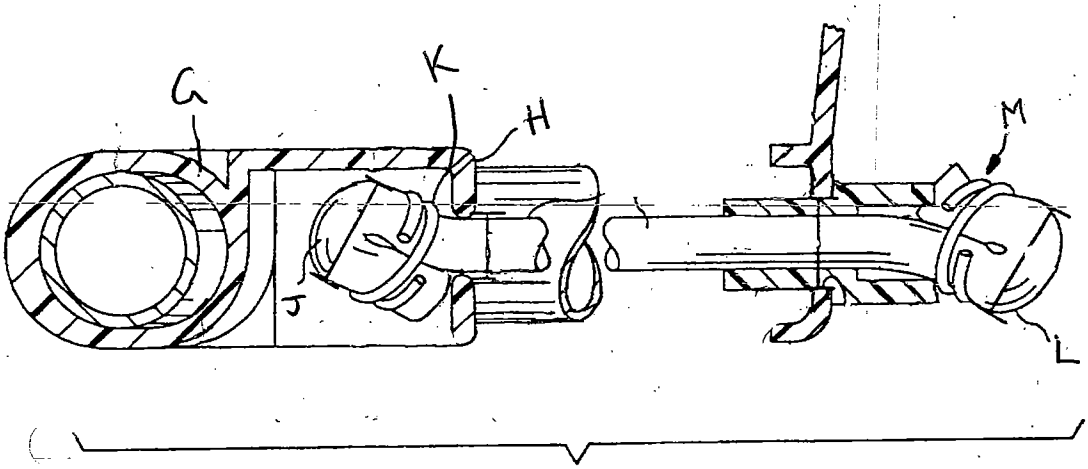

FIG. 2

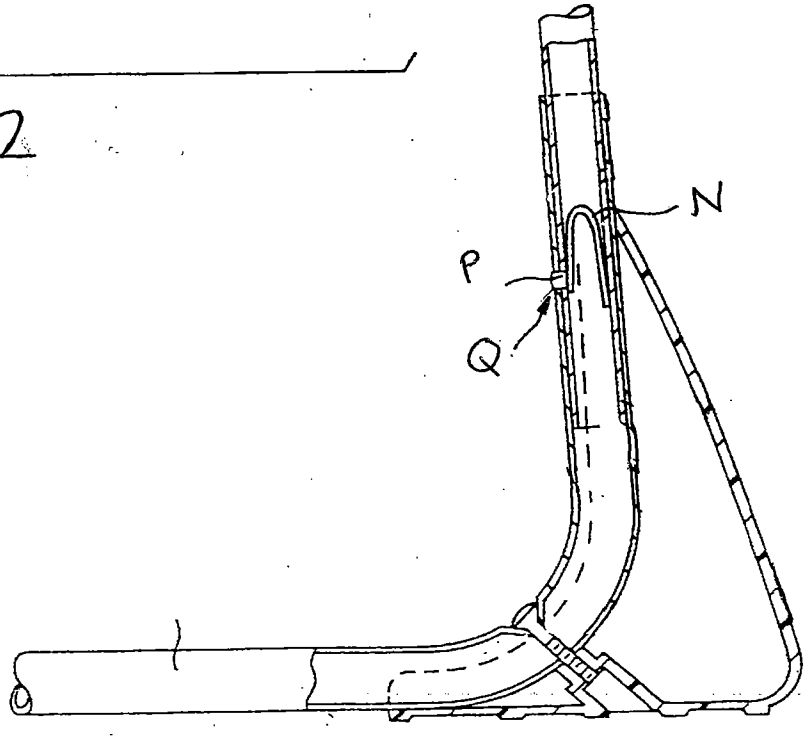

FIG. 3

BBBB Co - Product

Letter from Awkward, Inc. "B"

Big Beautiful Bouncing Baby Limited
5 Any Street
Auckland
NEW ZEALAND

Your New Product

We have become aware of your new bouncing baby seat, the "4B Bouncer".

We hold New Zealand patent No. 111111 which is current and in force and infringed by your bouncer. Your product is threatening our ability to find a licensee in New Zealand.

We demand that you withdraw your baby seat from the market immediately. We are also writing to your retailers to tell them that we will sue them if they sell the 4B Bouncer.

We require that you deliver all the offending bouncers to our lawyers, Bigger Bills, by 5.00pm, 20 July 2003 or we will see you in court.

Yours faithfully

Horace P Sweet
President
AWKWARD, INC.

"C"

NZ PATENT NO. 111111 of AWKWARD, INC.

Field

Even before a baby can walk, it has a desire and a need for movement and exercise. This desire manifests itself in crawling and other types of movement which require that the baby be attended or under surveillance to ensure that the baby does not harm or endanger itself.

The present invention relates to an improved infant seat which allows an infant or young child to be safely and securely retained in the seat while also allowing the infant to play and exercise by jumping off of the floor on which the seat is arranged. The infant can be safely left unattended in the infant seat since the seat remains stationary where it is positioned on the floor, even as the infant jumps up and down in the seat.

Background

Infant seats which are known present certain drawbacks which limit acceptability in the marketplace. One such drawback is that they are not easily adaptable to infants of different size. Another drawback is that the devices are difficult to assemble and expensive to manufacture.

Object

The present invention was developed in order to provide an inexpensive, safe, durable infant jump seat which can be adjusted to accommodate infants of different size, or one which will at least provide the public with a useful choice.

Statement of Invention

Accordingly, the present invention consists of an infant jump seat including a base adapted for resting on a floor and having a plurality of spaced vertically extending legs, each leg having a sleeve mounted on the upper portion thereof; a seat containing a pair of openings for receiving an infant's legs when an infant is arranged therein; and elastic means connecting said seat with said sleeve of each of said legs, respectively, whereby said seat is elastically suspended between said legs above said base.

A seat is connected with the base by a plurality of bungee cords extending between the seat and the upper ends of the legs so that the seat is elastically suspended between the legs above the base. The seat has a pair of openings for receiving an infant's legs when an infant is arranged therein. An adjustable connection mechanism is provided on the upper ends of the legs for the bungee cords which enables the seat to be vertically adjustable relative to the base. Thus, the base may be adjusted to a position where the infant's feet extend to the floor when the infant is placed in the seat enabling the infant to jump on the floor while being suspended in the seat.

According to one embodiment of the invention, the legs of the base each include a sleeve mounted on the upper portion thereof, with the adjustable connection mechanism provided on the sleeve and the bungee cords being connected therewith. In one embodiment, the sleeve includes a plurality of vertically spaced hooks for retaining a cord in a selected vertical position on the leg. In another embodiment, the sleeve contains a plurality of vertically spaced slots and the bungee cords each include a fastener which can be inserted in a selected slot to vertically position the seat. The fastener preferably is keyed so that it can be locked into the selected slot which is configured to receive the keyed fastener.

The base may be formed from a plurality of U-shaped tubular members including a lower horizontal portion and a pair of vertically extending portions. The adjacent vertical portions of the tubular members are connected with the sleeve to form the legs of the base.

In an alternate embodiment of the invention, the legs of the base comprise upper and lower telescoping members. The lower leg member contains a plurality of vertically spaced openings and the upper leg member includes a displaceable pin adapted for engaging the openings. Thus, the upper leg member can be vertically adjusted relative to the lower leg member by arranging the pin in a selected one of the openings, thereby adjusting the seat relative to the floor. The base comprises a plurality of tubular members which are connected between either the upper leg members or the lower leg members to provide stability to the jump seat.

Drawings

Figure 1 is a perspective of a preferred embodiment of the baby bungee jumper according to the invention;

Figure 2 is a side view of the leg upper portion of the jumper of Figure 1 showing the adjustable connection of a bungee cord with the leg;

Figure 3 is a perspective view of an alternate embodiment of the baby bungee jumper of the invention;

Figure 4 is a detailed perspective view of the leg upper portion of the jumper of Figure 3 and the fastener used to connect a bungee cord therewith;

Figures 5a, 5b, 6a, and 6b are detailed illustrations of various locking assemblies for the fastener and leg portion of Figure 4;

Figure 7 is an exploded view of the clamping mechanism for connecting a bungee cord with the seat of the jumper of Figures 1 or 3;

Figure 8 is a perspective view of a further embodiment of the baby bungee jumper according to the invention;

Figures 9 and 10 are sectional views taken along lines 9-9 and 10-10 respectively, of Figure 8; and

Figure 11 is a perspective view of an alternate embodiment of the jumper shown in Figure 8.

Description of Preferred Embodiments

Referring first to Figures 1 and 2, the preferred embodiment of the baby bungee jumper 2 according to the invention will be described. The jumper includes a frame or base 4 having upwardly extending legs 6. More particularly, the base comprises a plurality of U-shaped tubular members having a lower horizontal portion 8 which is adapted for resting on a horizontal surface such as a floor and a pair of upwardly extending portions 10. The adjacent upwardly extending portions of the U-shaped members define the legs of the jumper and are connected by a sleeve 12 which fits over the upper ends of the portions 10. In Figure 1, the base comprises three U-shaped members defining three legs, although it will be appreciated that a greater number of members defining a greater number of legs may be provided. The base tubular members are formed of any suitable durable material such as metal or synthetic plastic. As will be developed below, it is desirable that the material provide a slight degree of flexure between the legs 6 and the lower horizontal portions 8 of the members. The sleeve 12 can also be formed of metal or synthetic plastic.

A seat 14 is suspended from the upper ends of the legs 6 above the base by elastic cords 16 such as bungee cords. The seat is moulded from a rigid material such as synthetic plastic and may include a cushion 18 for supporting an infant or baby and an integral tray 20 for supporting small toys, food, or the like. The seat further contains a pair of openings (not shown) for receiving the infant's legs when the infant is arranged in the seat.

The sleeves 12 which connect the upwardly extending portions 10 of the base members together include on an outer surface a plurality of vertically spaced hooks 22. As shown in Figure 2 the hooks are configured to receive and retain the bungee cords 16 in a selected vertical position thereon. The bungee cords preferably have their ends securely connected with the underside of the seat 14 (as will be described with reference to Figure 7 below) with the intermediate portion looped around the legs and retained in one of the hooks 22. By selecting which hook is to receive a cord 16, the seat 14 can be vertically adjusted relative to the floor to a position where the infant's feet extend to the floor. When properly adjusted, the seat can safely support the infant and allow the infant to jump on the

floor without the jumper moving on the floor. The seat moves up and down with the infant owing to the elasticity of the cords 16. Additional vertical movement of the seat is achieved owing to the flexure of the legs 6 relative to the base 4 as shown in Figure 2. As the infant and seat move downwardly, the sleeve 12 connecting the upper ends of the upwardly extending base portions 10 moves inwardly to the position shown by the broken lines.

The seat 14 of Figure 3 is shown having a different configuration than that of Figure 1. It will be appreciated that any seat configuration may be used in the baby bungee jumper according to the invention. For example, the seat may be configured as an animal as shown in Figure 3. The seat may also be provided with a rotating mechanism (not shown) which allows the seat to rotate as well as bounce up and down with respect to the base.

Figure 3 also illustrates an alternate embodiment for connecting the seat 14 with the upper ends of the legs 6. The sleeves 12 include a plurality of vertically spaced slots 24 which are adapted to receive a fastener 26 connected with the bungee cord 16. As shown in Figure 4, the fastener 26 includes a receptacle 28 through which the cord passes and a projection 30 which is adapted for insertion in one of the slots 24. The slots are arranged on the outer surface of the sleeve as shown in Figure 3. The fastener is thus lifted over the end of the sleeve for insertion into a selected one of the slots to vertically position the seat relative to the floor.

In the embodiment of Figure 4, the projection 30 has a rectangular configuration and conforms to the configuration of the slots 24. The tension of the seat on the elastic cords serves to hold the fastener in the selected slot. In the embodiments of Figures 5 and 6, the fastener is adapted for locking in the selected slot. More particularly, in Figure 5a, the slot 32 is shaped as a keyway and in Figure 5b, the fastener 34 is shown having a keyed projection 36. In installation, the keyed projection is inserted laterally in the slot 32 and then displaced downwardly to secure or lock the fastener in the selected vertical slot on the sleeve. In the embodiment of Figure 6, the fastener 38 has a pair of keyed projections 40, 42 (Figure 6b) for insertion into a corresponding pair of slots 44, 46 (Figure 6a) provided in the sleeve. A plurality of vertically spaced pairs of openings are

provided in the sleeve 48 of Figure 6a so that the fastener 38 of Figure 6b can be arranged in the selected vertical position on the sleeve.

Turning now to Figure 7, there is shown a clamping mechanism 50 for connecting the ends of the bungee cords 16 with the underside of the seat 14. The ends of the cord are passed through slots in a clamping plate 52. The plate includes a plurality of through-openings 54 aligned with threaded openings 56 in the seat. Screws 58 are used to fasten the plate with the seat via the openings. Figure 7 also illustrates a spacer element 60 arranged over the bungee cord between the fastener 26 and the seat. At least one spacer element is provided on the cords to help restrain the cords and prevent an infant's hand or finger being pinched between the cords.

An alternate construction for the baby bungee jumper is shown in Figure 8. The seat 14 and bungee cords 16 in this embodiment are similar to those described above in connection with Figures 1 and 3. In Figure 8, the openings 62 in the seat for the infant's legs are shown. The primary difference lies in the base, legs, and adjustment mechanism. In Figure 8, the legs 64 comprise telescoping upper 66 and lower 68 leg members. The lower leg members have an enlarged base for resting on the floor and are interconnected with tubular base members 70. More particularly, as shown in Figure 9 the lower leg members contain interior openings 72 for receiving the ends of the base members 70. Screws 74 are used to secure the ends of the base members to the lower leg members.

The lower leg member 68 contains a plurality of vertically spaced openings 76 and the upper leg member 66 contains a displaceable pin 78 which is shown in Figure 10 adapted to fit in the openings. When the pin is displaced inwardly, the upper leg member can be moved upwardly or downwardly with respect to the lower leg member. When the desired height is obtained, the pin can be released to engage the opening for that height to lock the upper leg member in position. Since the bungee cords are connected with the upper end of the upper leg members, the seat will thus be positioned at a desired height above the floor in accordance with the length of the baby's legs.

The baby bungee jumper shown in Figure 11 is similar to that shown in Figure 8, except that the tubular base members 70 are connected between the upper leg

members 66. The height adjusting mechanism is the same as that shown in Figures 8 and 10. As in the jumpers shown in Figures 1 and 3, the jumpers in Figures 8 and 11 have legs, bases, and seats moulded from any rigid material such as synthetic plastic. Unlike the jumpers in Figures 1 and 3, the legs 64 of the jumpers in Figures 8 and 11 do not flex relative to the base.

While in accordance with the provisions of the patent statutes the preferred forms and embodiments of the invention have been illustrated and described, it will be apparent to those of ordinary skill in the art that various changes and modifications may be made without deviating from the inventive concepts set forth above.

WHAT WE CLAIM IS:

1. An infant jump seat, consisting of:

a base adapted for resting on a floor and including a plurality of spaced vertically extending legs, each leg having a sleeve mounted on the upper portion thereof;

a seat containing a pair of openings for receiving an infant's legs when an infant is arranged therein; and

elastic means connecting said seat with said sleeve of each of said legs, respectively, whereby said seat is elastically suspended between said legs above said base.

2. An infant jump seat as claimed in claim 1, including adjusting means for vertically adjusting said seat relative to said base, said adjusting means being mounted on said sleeves, whereby said seat may be vertically adjusted to a position where the infant's feet extend to the floor when the infant is placed in said seat enabling the infant to jump on the floor while being suspended in said seat.

3. An infant jump seat as claimed in claim 1 or claim 2, wherein said elastic means comprises a plurality of bungee cords.

4. An infant jump seat as claimed in claim 3, further including clamping means for removably connecting said bungee cords with said seat.

5. An infant jump seat as claimed in any one of the preceding claims, wherein said adjusting means comprises a plurality of vertically spaced hooks integral with said sleeve, said hooks removably retaining said cord in a selected vertical position on said leg.

6. An infant jump seat as claimed in claim 2 or claim 4, wherein said bungee cords include a fastener and said adjusting means comprises a plurality of vertically spaced slots arranged in said sleeve for removably receiving said fastener in a selected vertical position on said leg.

7. An infant jump seat as claimed in claim 6 wherein said fastener includes locking means for retaining said fastener within selected slots.

8. An infant jump seat as claimed in any one of the preceding claims, wherein said base has a tubular configuration.

9. An infant jump seat as defined in claim 7, wherein said base comprises a plurality of generally U-shaped tubular members including a lower horizontal portion and a pair of upwardly extending portions, the adjacent upwardly extending portions of said tubular members being connected with said sleeve to define said legs.

10. An infant jump seat as claimed in claim 8, wherein said legs flex laterally with respect to said lower horizontal portions of said base tubular members.

11. An infant jump seat as claimed in claim 9, wherein said base includes three legs.

12. An infant jump seat substantially as herein described, with reference to any one or more of the accompanying drawings.

NZ 111111

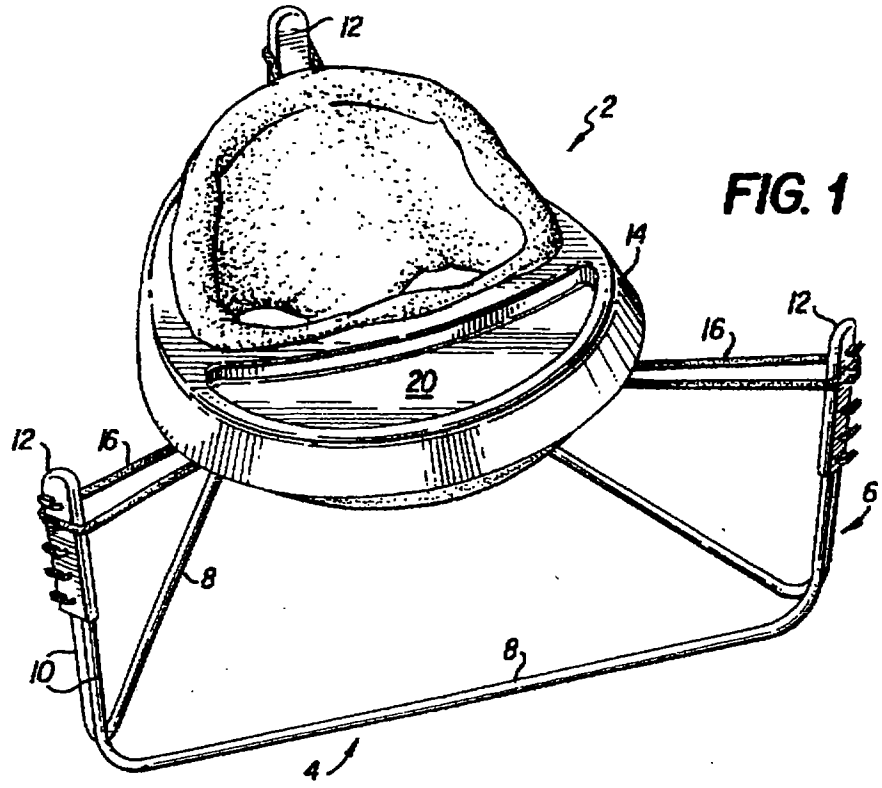

FIG. 1

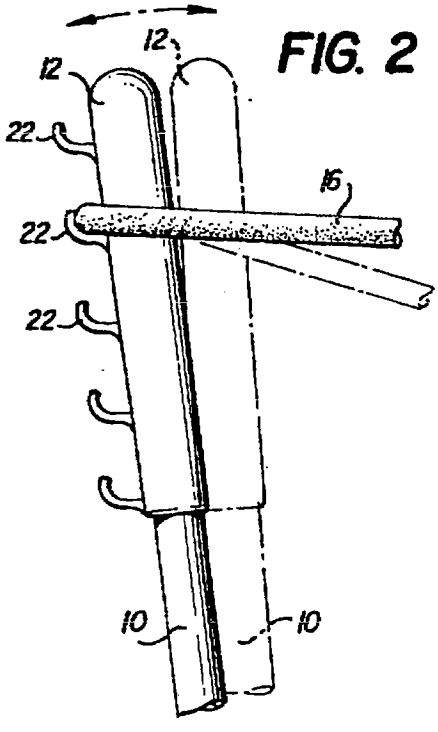

FIG. 2

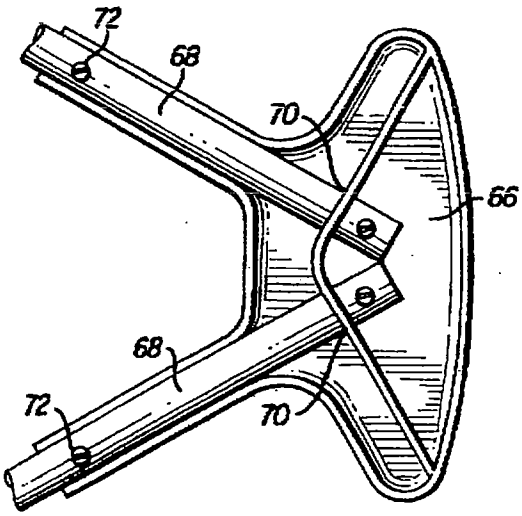

FIG. 9

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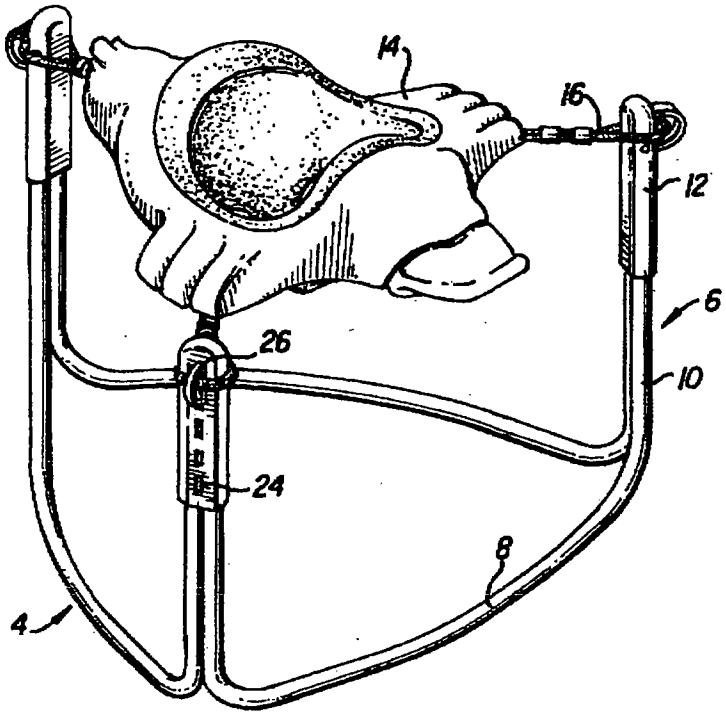


FIG. 3

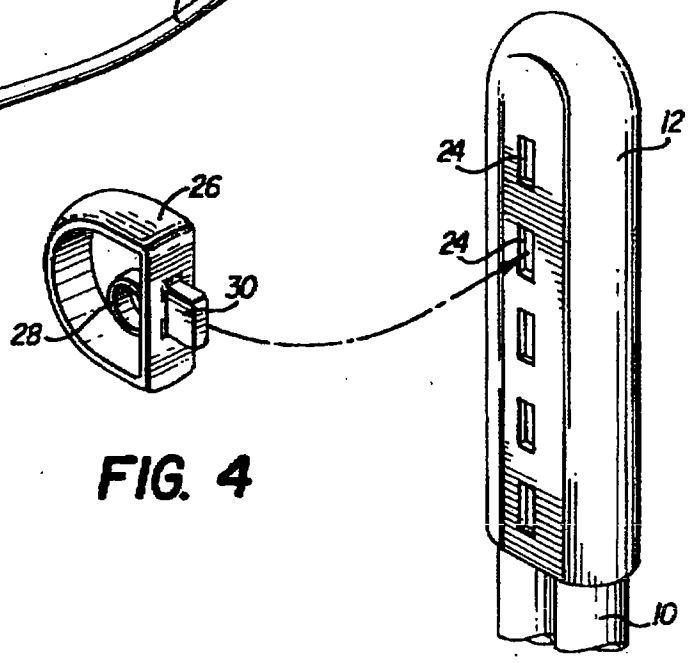
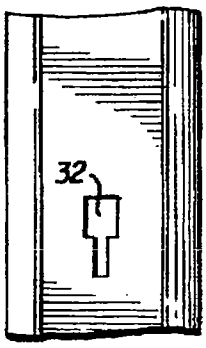


FIG. 4

FIG. 5a



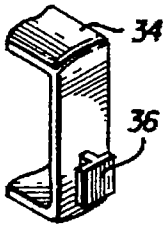
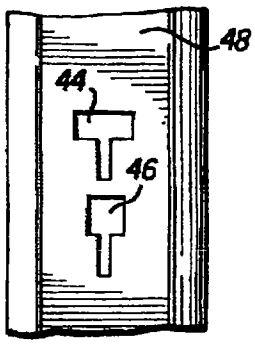


FIG. 5b

FIG. 6a



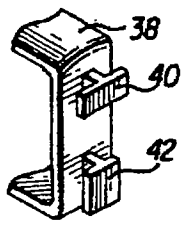


FIG. 6b

NZ 111111

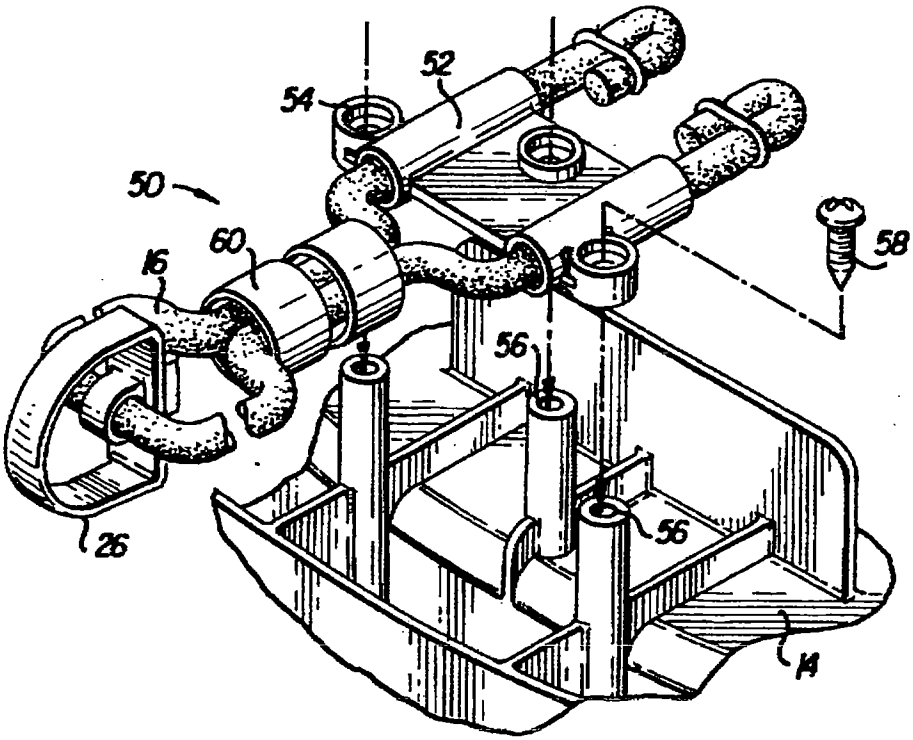


FIG. 7

NZ 111111

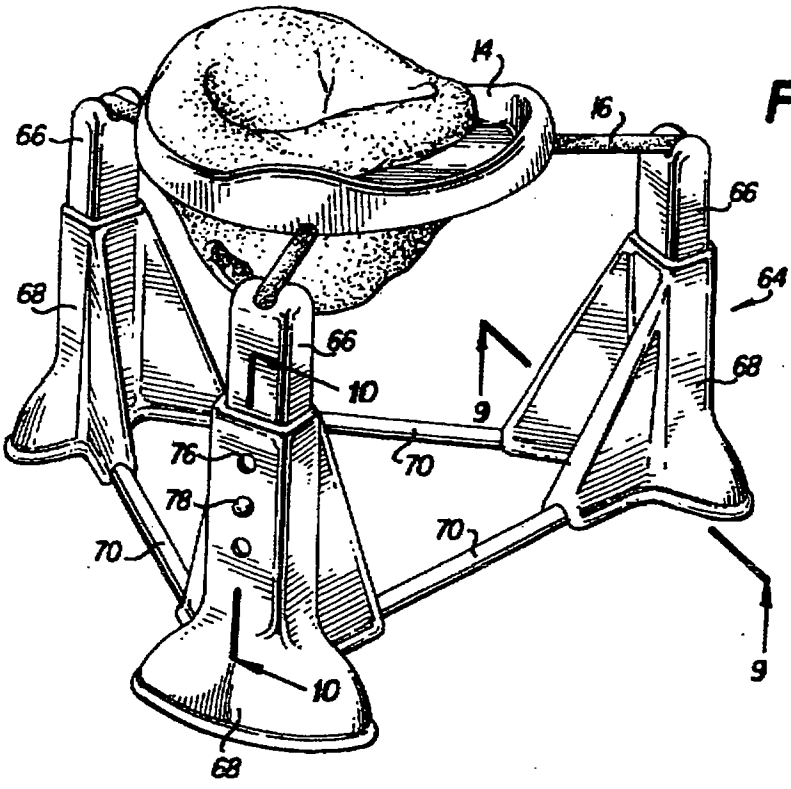


FIG. 8

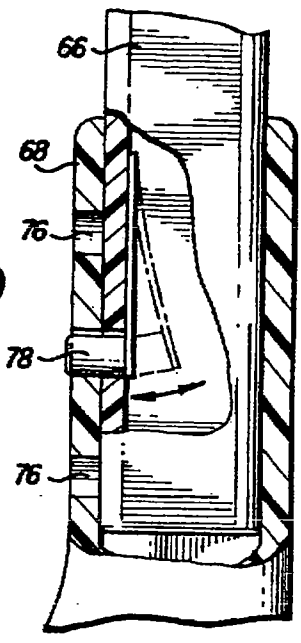


FIG. 10

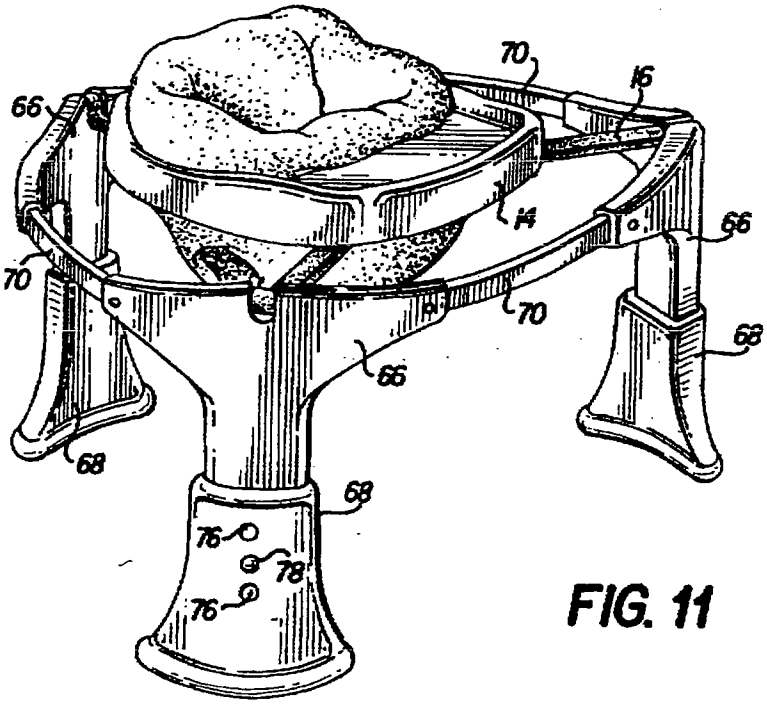


FIG. 11

"D"

US005690383A

United States Patent [19]

Awkward

[11] Patent Number: 5,690,383

[45] Date of Patent: Nov. 25, 1997

[54] **BABY BUNGEE JUMPER**

[75] Inventor: Fred Awkward

[73] Assignee: Awkward Inc, Ohio

[21] Appl. No.: **612,474**

[22] Filed: **Mar. 7, 1996**

[51] **Int. Cl.**[6] **A47D 1/00**

[52] **U.S. Cl.** **297/274**; 472/105; 482/69; 297/344.12

[58] **Field of Search** 297/5, 273, 274, 297/275, 338, 344.12, 344.18; 472/95, 103, 104, 105; 482/66, 68, 69

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5,451,093	9/1995	Petrie et al.	482/66 X

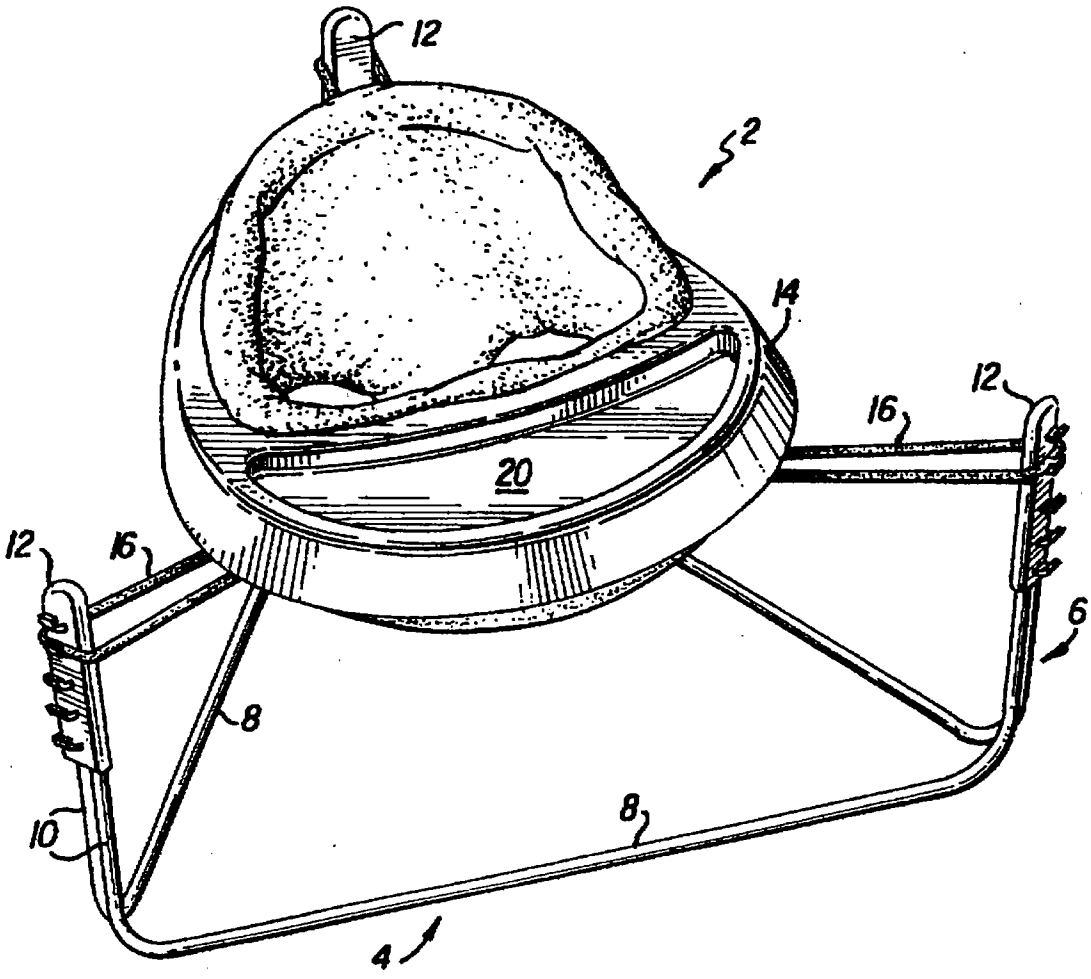
Primary Examiner—Peter R. Brown

Attorney, Agent, or Firm—Donald R. Bahr; Lawrence E. Laubscher, Jr.; Lawrence E. Laubscher, Sr.

[57] **ABSTRACT**

An improved baby bungee jumper is characterized by the use of bungee cords to elastically suspend an infant seat above a base resting on a floor and by an adjustment mechanism for vertically adjusting the seat relative to the floor to accommodate infants of different size. The base includes a plurality of vertically extending legs and the bungee cords are connected between the seat and the upper ends of the legs. The adjustment mechanism is provided on the legs where the bungee cords are connected.

10 Claims, 4 Drawing Sheets



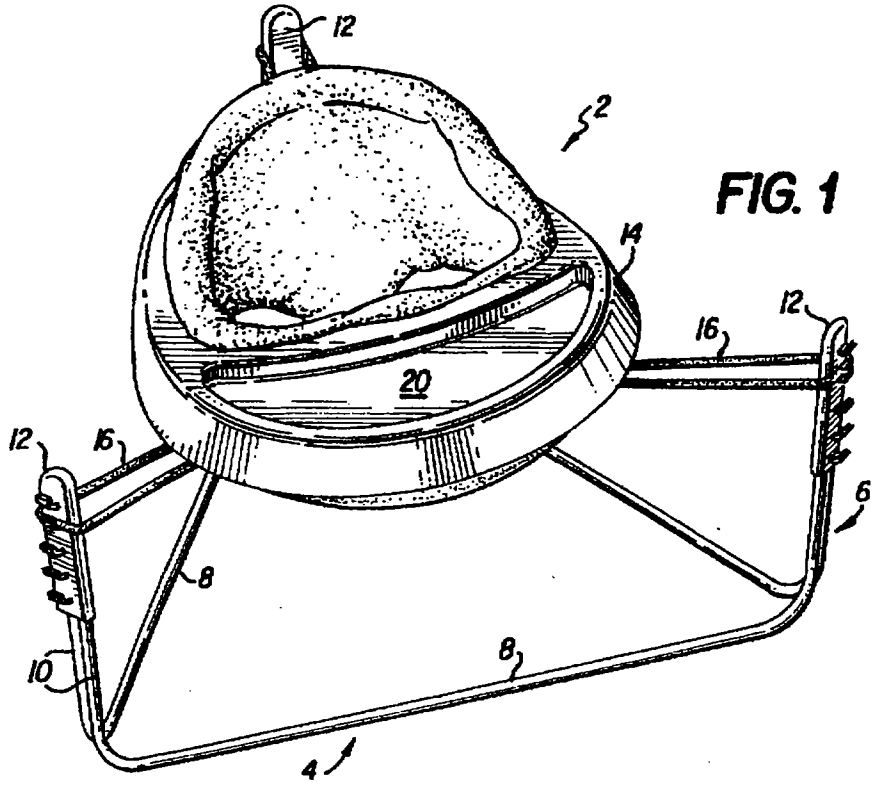


FIG. 1

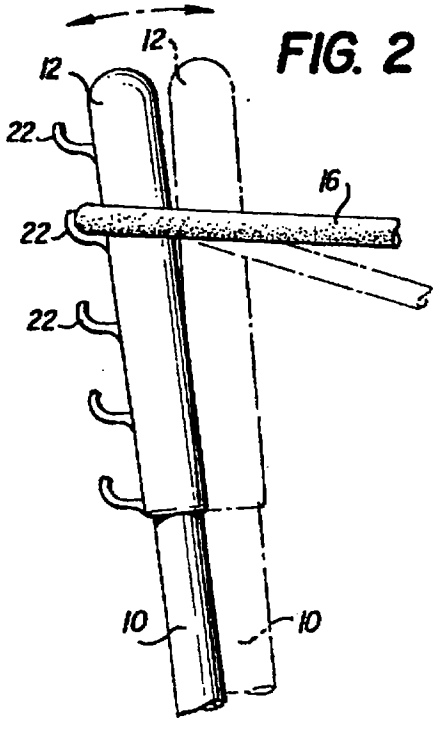
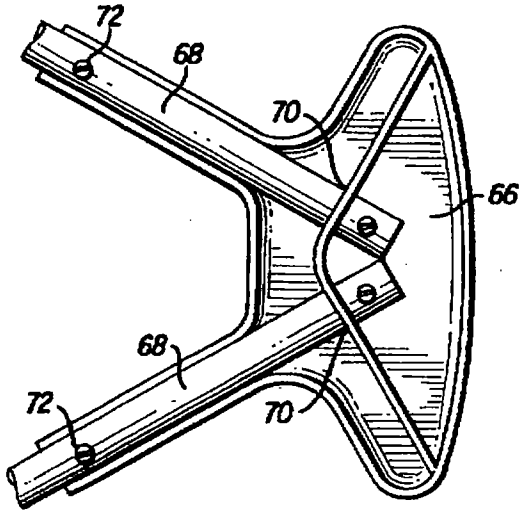


FIG. 2

FIG. 9



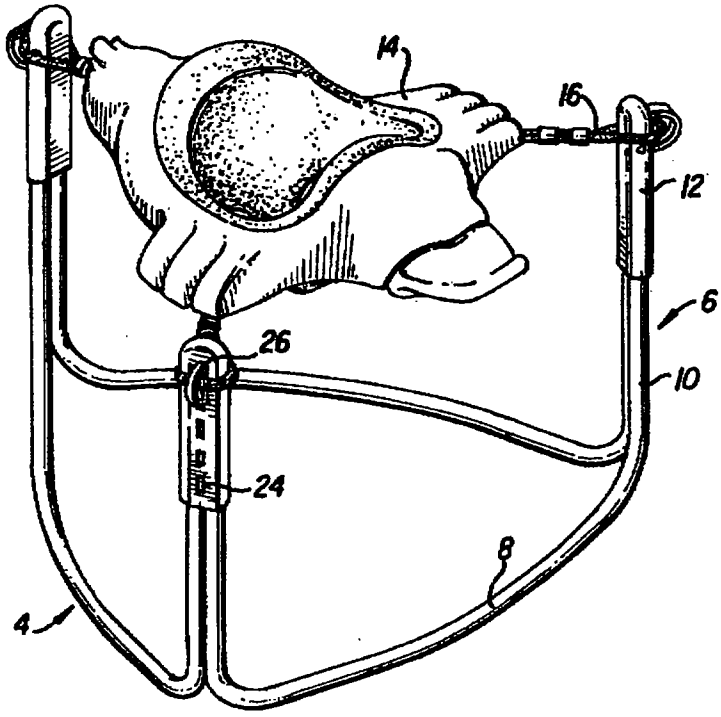


FIG. 3

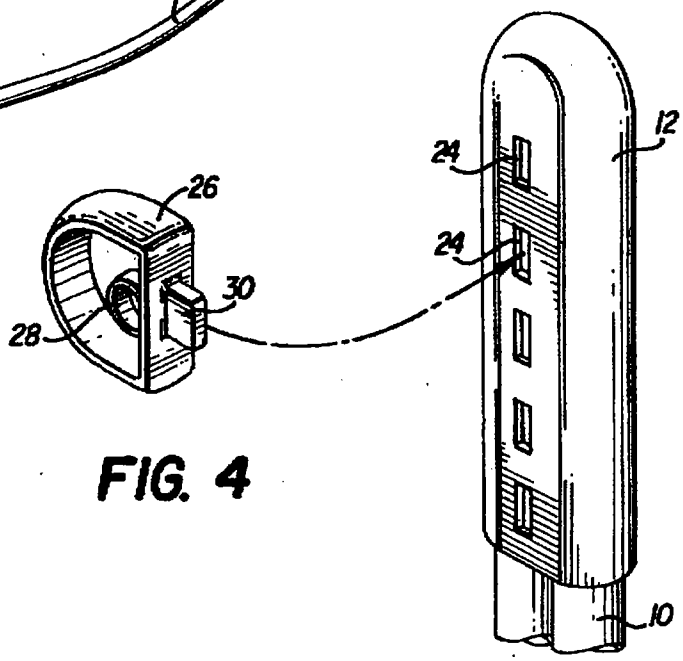
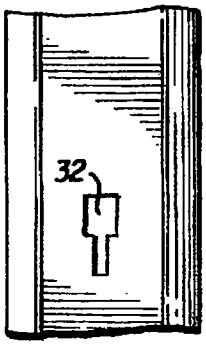


FIG. 4

FIG. 5a



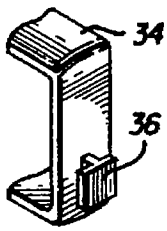
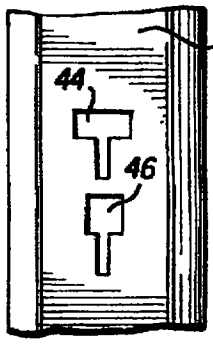


FIG. 5b

FIG. 6a



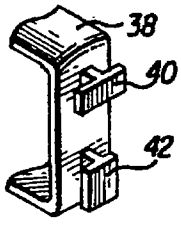


FIG. 6b

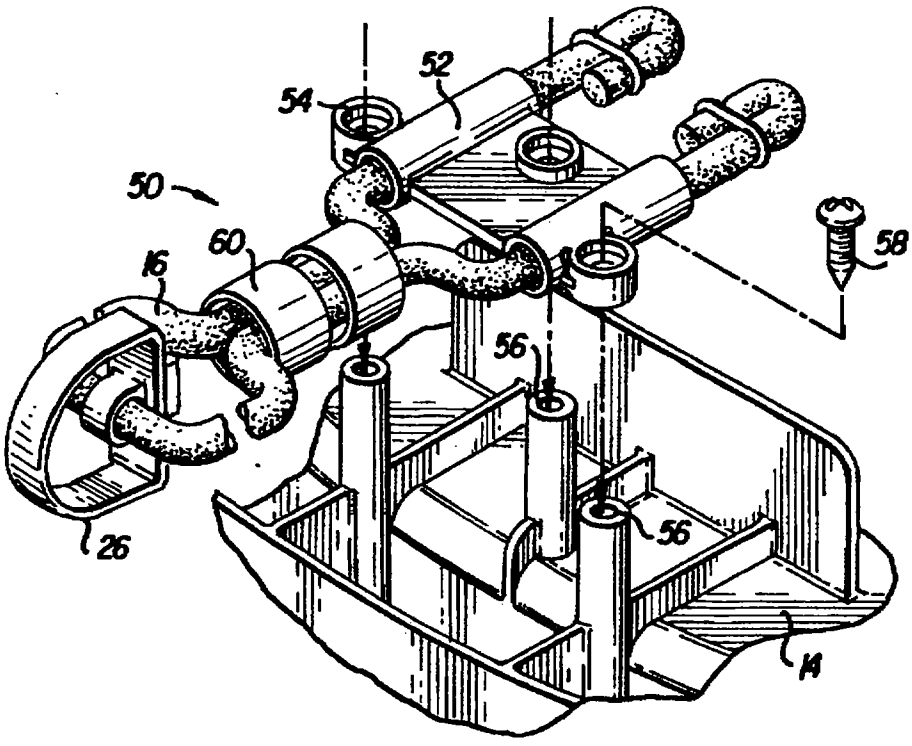


FIG. 7

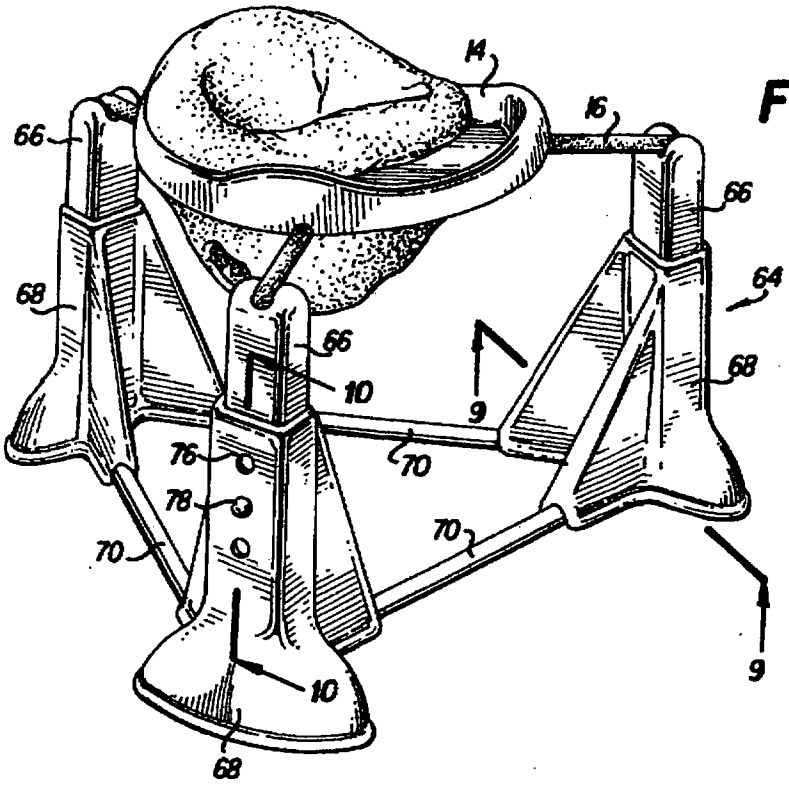


FIG. 8

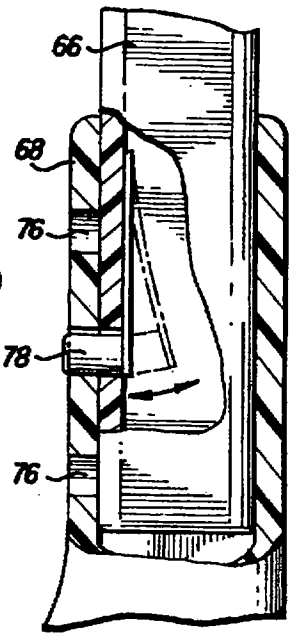


FIG. 10

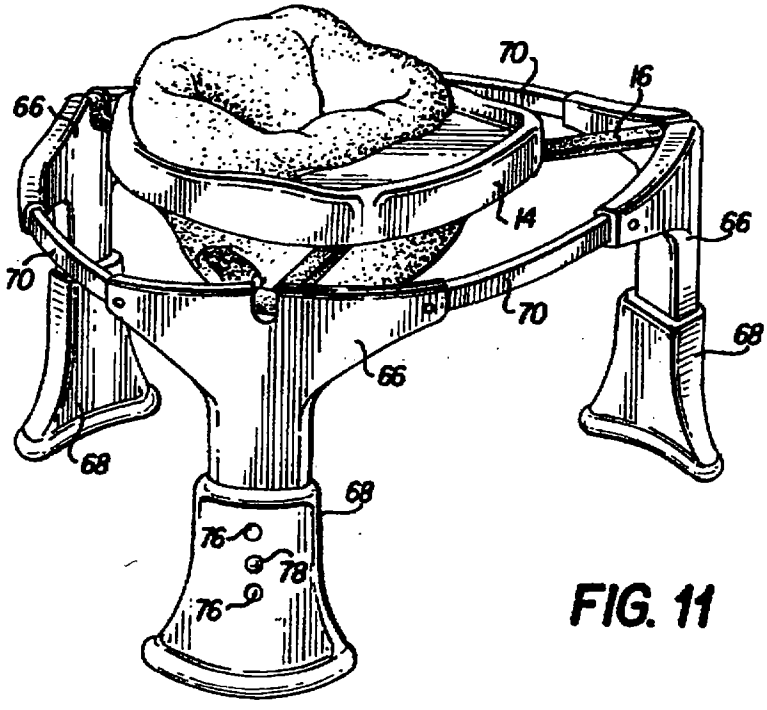


FIG. 11

BABY BUNGEE JUMPER

BACKGROUND OF THE INVENTION

Even before a baby can walk, it has a desire and a need for movement and exercise. This desire manifests itself in crawling and other types of movement which require that the baby be attended or under surveillance to insure that the baby does not harm or endanger itself.

The present invention relates to an improved infant seat which allows an infant or young child to be safely and securely retained in the seat while also allowing the infant to play and exercise by jumping off of the floor on which the seat is arranged. The infant can be safely left unattended in the infant seat since the seat remains stationary where it is positioned on the floor, even as the infant jumps up and down in the seat.

BRIEF DESCRIPTION OF THE PRIOR ART

Infant jumping seats which afford bouncing movement of the seat relative to a frame are well-known in the patented prior art as evidenced by the U.S. Pat. to Wellman No. 16,942, Bradish et al No. 517,403, Gannon No. 1,256,548, Dzimitowicz No. 1,326,921, and Upper No. 1,950,042. In these devices, coil springs are used to support the seat relative to the frame. These prior devices were heavy and cumbersome and in some instances did not adequately support an infant.

An improved infant seat is disclosed in the U.S. Pat. to Petrie et al No. 5,451,093 which relates to an infant seat and table resiliently mounted on a four-legged base so that the seat and table can bounce with respect to the base. Endless rubber bands are used to connect the seat with the base to provide the resiliency necessary for the infant to tilt or bounce in the seat without tipping over.

While the Petrie device is an improvement over the prior devices, it still presents certain drawbacks which limit its acceptability in the marketplace. One such drawback is that the device is not easily adaptable to infants of different size. Another drawback is that the device is difficult to assemble and expensive to manufacture.

The present invention was developed in order to overcome these and other drawbacks of the prior devices by providing an inexpensive, safe, durable infant jump seat which can be adjusted to accommodate infants of different size.

SUMMARY OF THE INVENTION

Accordingly, it is a primary object of the present invention to provide an infant jump seat including a base adapted for resting on a floor and having a plurality of spaced vertically extending legs. A seat is connected with the base by a plurality of bungee cords extending between the seat and the upper ends of the legs so that the seat is elastically suspended between the legs above the base. The seat has a pair of openings for receiving an infant's legs when an infant is arranged therein. An adjustable connection mechanism is provided on the upper ends of the legs for the bungee cords which enables the seat to be vertically adjustable relative to the base. Thus, the seat may be adjusted to a position where the infant's feet extend to the floor when the infant is placed in the seat enabling the infant to jump on the floor while being suspended in the seat.

According to another object of the invention, the legs of the base each include a sleeve mounted on the upper portion thereof, with the adjustable connection mechanism provided

on the sleeve and the bungee cords being connected therewith. In one embodiment, the sleeve includes a plurality of vertically spaced hooks for retaining a cord in a selected vertical position on the leg. In another embodiment, the sleeve contains a plurality of vertically spaced slots and the bungee cords each include a fastener which can be inserted in a selected slot to vertically position the seat. The fastener preferably is keyed so that it can be locked into the selected slot which is configured to receive the keyed fastener.

It is yet another object to form the base from a plurality of U-shaped tubular members including a lower horizontal portion and a pair of vertically extending portions. The adjacent vertical portions of the tubular members are connected with the sleeve to form the legs of the base.

In an alternate embodiment of the invention, the legs of the base comprise upper and lower telescoping members. The lower leg member contains a plurality of vertically spaced openings and the upper leg member includes a displaceable pin adapted for engaging the openings. Thus, the upper leg member can be vertically adjusted relative to the lower leg member by arranging the pin in a selected one of the openings, thereby adjusting the seat relative to the floor. The base comprises a plurality of tubular members which are connected between either the upper leg members or the lower leg members to provide stability to the jump seat.

BRIEF DESCRIPTION OF THE FIGURES

Other objects and advantages of the invention will become apparent from a study of according to the ivention;

FIG. **1** is a perspective view of a preferred embodiment of the baby bungee jumper according to the invention;

FIG. **2** is a side view of the leg upper portion of the jumper of FIG. **1** showing the adjustable connection of a bungee cord with the leg;

FIG. **3** is a perspective view of an alternate embodiment of the baby bungee jumper of the invention;

FIG. **4** is a detailed perspective view of the leg upper potion of the jumper of FIG. **3** and the fastener used to connect a bungee cord therewith;

FIGS. **5***a*, **5***b*, **6***a*, and **6***b* are detailed illustrations of various locking assemblies for the fastener and leg potion of FIG. **4**;

FIG. **7** is an exploded view of the clamping mechanism for connecting a bungee cord with the seat of the jumper of FIGS. **1** or **3**;

FIG. **8** is a perspective view of a further embodiment of the baby bungee jumper according to the invention;

FIG. **9** and **10** are sectional views taken along lines **9**—**9** and **10**—**10**, respectively, of FIG. **8**; and

FIG. **11** is a perspective view of an alternate embodiment of the jumper shown in FIG. **8**.

DETAILED DESCRIPTION

Referring first to FIGS. **1** and **2**, the preferred embodiment of the baby bungee jumper **2** according to the invention will be described. The jumper includes a frame or base **4** having upwardly extending legs **6**. More particularly, the base comprises a plurality of U-shaped tubular members having a lower horizontal portion **8** which is adapted for resting on a horizontal surface such as a floor and a pair of upwardly extending portions **10**. The adjacent upwardly extending portions of the U-shaped members define the legs of the jumper and are connected by a sleeve **12** which fits over the

upper ends of the portions **10**. In FIG. **1**, the base comprises three U-shaped members defining three legs, although it will be appreciated that a greater number of members defining a greater number of legs may be provided. The base tubular members are formed of any suitable durable material such as metal or synthetic plastic. As will be developed below, it is desirable that the material provide a slight degree of flexure between the legs **6** and the lower horizontal portions **8** of the members. The sleeve **12** can also be formed of metal or synthetic plastic.

A seat **14** is suspended from the upper ends of the legs **6** above the base by elastic cords **16** such as bungee cords. The seat is molded from a rigid material such as synthetic plastic and may include a cushion **18** for supporting an infant or baby and an integral tray **20** for supporting small toys, food, or the like. The seat further contains a pair of openings (not shown) for receiving the infant's legs when the infant is arranged in the seat.

The sleeves **12** which connect the upwardly extending portions **10** of the base members together include on an outer surface a plurality of vertically spaced hooks **22**. As shown in FIG. **2** the hooks are configured to receive and retain the bungee cords **16** in a selected vertical position thereon. The bungee cords preferably have their ends securely connected with the underside of the seat **14** (as will be described with reference to FIG. **7** below) with the intermediate portion looped around the legs and retained in one of the hooks **22**. By selecting which hook is to receive a cord **16**, the seat **14** can be vertically adjusted relative to the floor to a position where the infant's feet extend to the floor. When properly adjusted, the seat can safely support the infant and allow the infant to jump on the floor without the jumper moving on the floor. The seat moves up and down with the infant owing to the elasticity of the cords **16**. Additional vertical movement of the seat is achieved owing to the flexure of the legs **6** relative to the base **4** as shown in FIG. **2**. As the infant and seat move downwardly, the sleeve **12** connecting the upper ends of the upwardly extending base portions **10** moves inwardly to the position shown by the broken lines.

The seat **14** of FIG. **3** is shown having a different configuration than that of FIG. **1**. It will be appreciated that any seat configuration may be used in the baby bungee jumper according to the invention. For example, the seat may be configured as an animal as shown in FIG. **3**. The seat may also be provided with a rotating mechanism (not shown) which allows the seat to rotate as well as bounce up and down with respect to the base.

FIG. **3** also illustrates an alternate embodiment for connecting the seat **14** with the upper ends of the legs **6**. The sleeves **12** include a plurality of vertically spaced slots **24** which are adapted to receive a fastener **26** connected with the bungee cord **16**. As shown in FIG. **4**, the fastener **26** includes a receptacle **28** through which the cord passes and a projection **30** which is adapted for insertion in one of the slots **24**. The slots are arranged on the outer surface of the sleeve as shown in FIG. **3**. The fastener is thus lifted over the end of the sleeve for insertion into a selected one of the slots to vertically position the seat relative to the floor.

In the embodiment of FIG. **4**, the projection **30** has a rectangular configuration and conforms to the configuration of the slots **24**. The tension of the seat on the elastic cords serves to hold the fastener in the selected slot. In the embodiments of FIGS. **5** and **6**, the fastener is adapted for locking in the selected slot. More particularly, in FIG. **5***a*, the slot **32** is shaped as a keyway and in FIG. **5***b*, the fastener **34** is shown having a keyed projection **36**. In installation, the keyed projection is inserted laterally in the slot **32** and then displaced downwardly to secure or lock the fastener in the selected vertical slot on the sleeve. In the embodiment of FIG. **6**, the fastener **38** has a pair of keyed projections **40**, **42** (FIG. **6***b*) for insertion into a corresponding pair of slots **44**, **46** (FIG. **6***a*) provided in the sleeve. A plurality of vertically spaced pairs of openings are provided in the sleeve **48** of FIG. **6***a* so that the fastener **38** of FIG. **6***b* can be arranged in the selected vertical position on the sleeve.

Turning now to FIG. **7**, there is shown a clamping mechanism **50** for connecting the ends of the bungee cords **16** with the underside of the seat **14**. The ends of the cord are passed through slots in a clamping plate **52**. The plate includes a plurality of through-openings **54** aligned with threaded openings **56** in the seat. Screws **58** are used to fasten the plate with the seat via the openings. FIG. **7** also illustrates a spacer element **60** arranged over the bungee cord between the fastener **26** and the seat. At least one spacer element is provided on the cords to help restrain the cords and prevent an infant's hand or finger being pinched between the cords.

An alternate construction for the baby bungee jumper is shown in FIG. **8**. The seat **14** and bungee cords **16** in this embodiment are similar to those described above in connection with FIGS. **1** and **3**. In FIG. **8**, the openings **62** in the seat for the infant's legs are shown. The primary difference lies in the base, legs, and adjustment mechanism. In FIG. **8**, the legs **64** comprise telescoping upper **66** and lower **68** leg members. The lower leg members have an enlarged base for resting on the floor and are interconnected with tubular base members **70**. More particularly, as shown in FIG. **9** the lower leg members contain interior openings **72** for receiving the ends of the base members **70**. Screws **74** are used to secure the ends of the base members to the lower leg members.

The lower leg member **68** contains a plurality of vertically spaced openings **76** and the upper leg member **66** contains a displaceable pin **78** which is shown in FIG. **10** adapted to fit in the openings. When the pin is displaced inwardly, the upper leg member can be moved upwardly or downwardly with respect to the lower leg member. When the desired height is obtained, the pin can be released to engage the opening for that height to lock the upper leg member in position. Since the bungee cords are connected with the upper end of the upper leg members, the seat will thus be positioned at a desired height above the floor in accordance with the length of the baby's legs.

The baby bungee jumper shown in FIG. **11** is similar to that shown in FIG. **8**, except that the tubular base members **70** are connected between the upper leg members **66**. The height adjusting mechanism is the same as that shown in FIGS. **8** and **10**. As in the jumpers shown in FIGS. **1** and **3**, the jumpers in FIGS. **8** and **11** have legs, bases, and seats molded from any rigid material such as synthetic plastic. Unlike the jumpers in FIGS. **1** and **3**, the legs **64** of the jumpers in FIGS. **8** and **11** do not flex relative to the base.

While in accordance with the provisions of the patent statutes the preferred forms and embodiments of the invention have been illustrated and described, it will be apparent to those of ordinary skill in the art that various changes and modifications may be made without deviating from the inventive concepts set forth above.

What is claimed is:

1. An infant jump seat, comprising

(a) a base adapted for resting on a floor and including a plurality of spaced vertically extending legs, each leg having a sleeve mounted on the upper portion thereof;

(b) a seat containing a pair of openings for receiving an infant's legs when an infant is arranged therein;

(c) elastic means for connecting said seat with said sleeve of each of said legs, respectively, whereby said seat is elastically suspended between said legs above said base; and

(d) adjusting means for vertically adjusting said seat relative to said base, said adjusting means being mounted on said sleeves, whereby said seat may be vertically adjusted to a position where the infant's feet extend to the floor when the infant is placed in said seat enabling the infant to jump on the floor while being suspended in said seat.

2. An infant jump seat as defined in claim 1, wherein said elastic means comprises a plurality of bungee cords.

3. An infant jump seat as defined in claim 2, and further comprising clamping means for removably connecting said bungee cords with said seat.

4. An infant jump seat as defined in claim 1, wherein said adjusting means comprises a plurality of vertically spaced hooks integral with said sleeve, said hooks removably retaining said cord in a selected vertical position on said leg.

5. An infant jump seat as defined in claim 1, wherein said bungee cords include a fastener and said adjusting means comprises a plurality of vertically spaced slots arranged in said sleeve for removably receiving said fastener in a selected vertical position on said leg.

6. An infant jump seat as defined in claim 5 wherein said fastener includes locking means for retaining said fastener within selected slots.

7. An infant jump seat as defined in claim 1, wherein said base has a tubular configuration.

8. An infant jump seat as defined in claim 7, wherein said base comprises a plurality of generally U-shaped tubular members including a lower horizontal portion and a pair of upwardly extending portions, the adjacent upwardly extending portions of said tubular members being connected with said sleeve to define said legs.

9. An infant jump seat as defined in claim 8, wherein said legs flex laterally with respect to said lower horizontal portions of said base tubular members.

10. An infant jump seat as defined in claim 9, wherein said base includes three legs.

* * * * *

"E"

US005201693A

United States Patent [19]

Sparkes

[11] Patent Number: 5,201,693

[45] Date of Patent: Apr. 13, 1993

[54] BABY BOUNCER

[75] Inventor: Curtis A. Sparkes, Altrincham, England

[73] Assignee: Lamondine S. A., Geneva, Switzerland

[21] Appl. No.: 694,493

[22] Filed: May 2, 1991

[30] Foreign Application Priority Data

May 2, 1990 [GB] United Kingdom 9009923
Jun. 20, 1990 [GB] United Kingdom 9013732

[51] Int. Cl.[5] A63B 22/00; A61H 3/00
[52] U.S. Cl. 482/69; 472/118
[58] Field of Search 482/23, 69, 77, 74; 297/463; 472/32, 34, 39, 118

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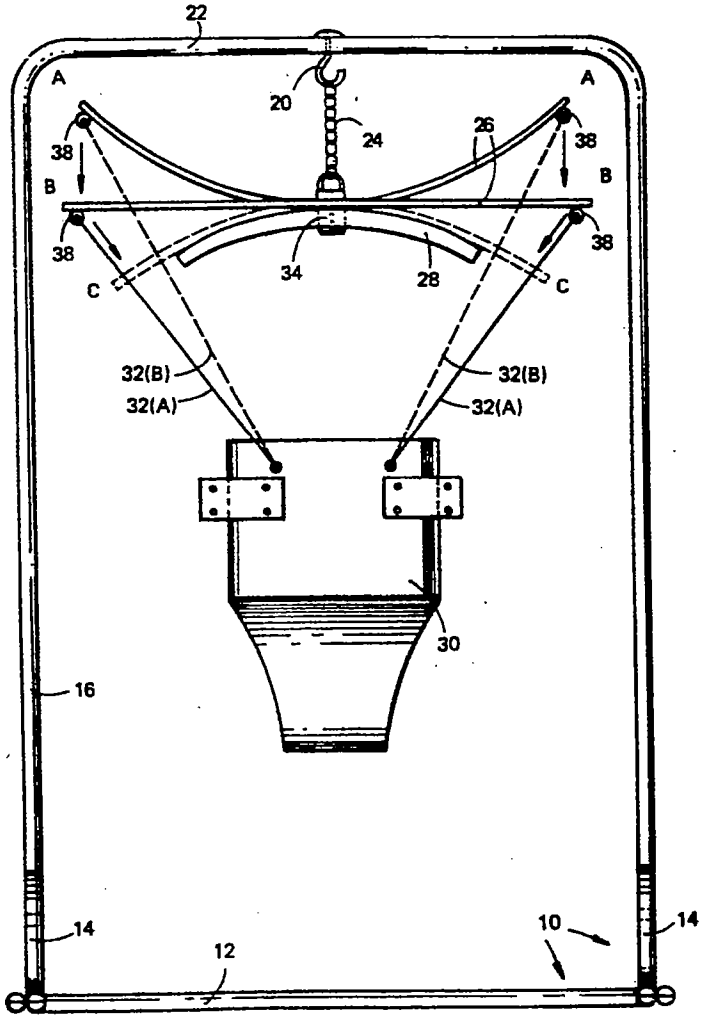
Primary Examiner—Stephen R. Crow
Attorney, Agent, or Firm—Burns, Doane, Swecker & Mathis

[57] ABSTRACT

A baby bouncer apparatus includes a spring which is adapted in use to be suspended from an overhead suspension arrangement, and a harness for holding the baby which is suspended below the spring. The spring comprises an elongate cantilever spring arrangement disposed transverse relative to the overhead suspension and relative to the direction in which load is to be applied. The harness is suspended from respective end regions of the cantilever spring arrangement.

17 Claims, 2 Drawing Sheets



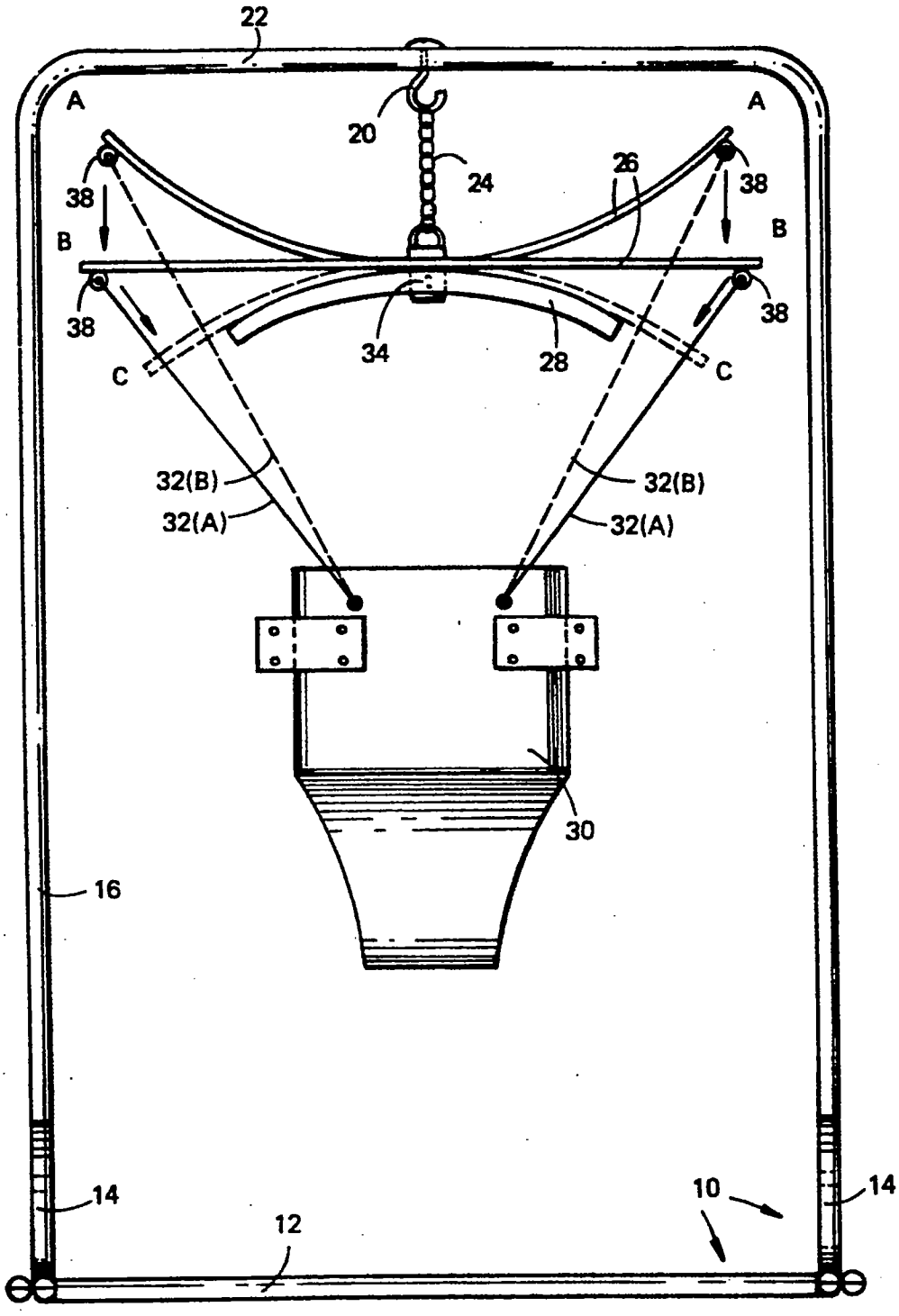

22
A
A
20
24
26
38
38
B
B
38
38
34
28
C
C
32(B)
32(B)
32(A)
32(A)
30
16
14
14
12
10

FIG. 1

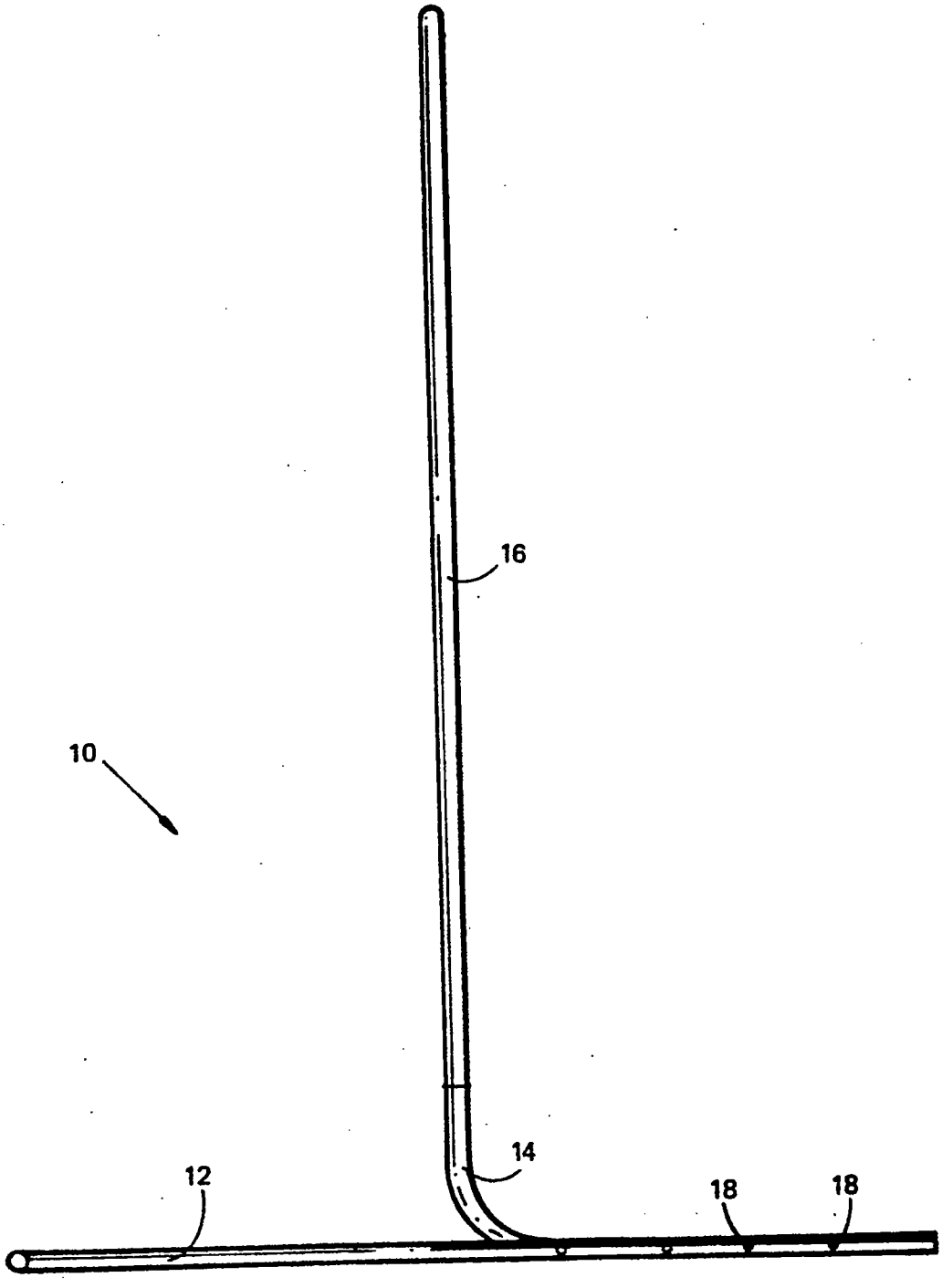


FIG. 2

BABY BOUNCER

FIELD OF THE INVENTION

This invention concerns a baby bouncer, that is to say apparatus for overhead suspension and for support of a baby or very young child in such a way that he/she is capable of bouncing up and down.

BACKGROUND OF THE INVENTION

Present commercially available baby bouncer apparatus generally comprises means for clamping over a door lintel, such as slidably or pivotally connected jaw elements, or else a ceiling mounted hook, and, attached thereto, optionally by way of a non-extensible connector, such as a chain, an elongate tension spring, usually a helical spring, but occasionally a strip of rubber or the like, which in use is arranged vertically and is extensible vertically, in the direction in which load is applied. Attached to the other end of the spring, again optionally by way of an inextensible connector, is a transverse bar, from the extremities of which, a harness for the baby is suspended by way of respective lines, such as cords, ropes or chains. The harness generally comprises a portion which fits between the baby's legs and a portion which fits around his/her waist. It may be relatively rigid, in the manner of a seat, or relatively flexible, in the manner of a belt, with a looped lower piece to fit between the legs.

In use, the bouncer apparatus should be so arranged that the baby, when seated or strapped into the harness, is able to stand with his/her feet in contact with the ground, but the suspension means should be of such length and the spring of such tension, that, at rest, the baby is properly supported and is not in a position of having bent knees with feet flat on the ground. The baby should then be able to exert positive downward force by bending his/her legs so as to extend the spring, which will then react, when that force is released, by reducing in length and permitting upward bouncing of the baby. In this respect, it will be appreciated that the purpose of the apparatus, in addition to providing an enjoyable activity for the baby, while it is safely retained (i.e. incapable of crawling about with all the risks that involves), is to develop the strength of the baby's legs, as well as general co-ordination in an upright position as a precursor to walking.

Problems can arise in three areas in relation to the known commercial baby bouncers. Firstly, in respect of the overhead fixing, clamping may not be sufficiently secure, particularly if the lintel does not provide a wide ledge to engage over, and the alternative of a hook means a permanent fixing position, and a permanent fixture, which cannot be removed without repair being necessary. Secondly, the tension of the spring is critical to satisfactory operation of the bouncer, and this may prove inadequate, or start to fail after prolonged use. Thirdly, and this is connected also to the matter of spring tension, the height available between the overhead fixing (lintel or ceiling hook) and the harness may often prove inadequate, and this puts constraints on the spring, which then cannot be too long and must have a relatively high co-efficient of tension (elasticity).

SUMMARY OF THE INVENTION

The object of the present invention is to propose a modified design of a baby bouncer which should obviate at least some of the problems outlined above.

According to the invention the baby bouncer apparatus comprises elongate cantilever spring means arranged transversely relative to its overhead suspension means and relative to the direction in which load is to be applied thereto, a harness for a baby being suspended from respective end regions of the cantilever spring means.

In use, the suspension means, which may consist of an inextensible metal chain, hangs vertically, whilst the cantilever spring means extends crosswise, i.e. generally horizontally. When the baby is installed in the harness, load is applied in a downward direction and the end regions of the cantilever spring means, to which the harness is attached, flex downwards, resiliently, so the spring means takes on a bowed shape. The resilience of the spring means permits bouncing of the baby in the same way as with previous bouncer devices, without the need for any vertically arranged spring element, which may take up too much of the limited headspace. In other words, by using a transverse cantilever spring means, the amount of headspace available is no longer critical to successful operation of the bouncer.

The cantilever spring means, which conveniently consists of a single elongate element, such as a metal bar or strip, effectively constituting a leaf spring, is thus able to take the place and take on the combined functions of the previous vertically hanging spring means (helical spring or resilient block) and non-flexible transverse bar for suspension of the harness.

It is particularly advantageous in practical embodiments of the invention for the cantilever spring, at rest, to have a curved, preferably a symmetrically bowed, configuration such that its end regions, to which the harness lines are attached are higher (i.e. further from the harness) than its central region. In this respect, the chosen initial curvature of the cantilever spring is preferably equal, but opposite to its maximum downward flexure in its fully loaded condition (whether or not limited by any support means).

Ideally, the spring tension of the cantilever spring is selected so that in the initial unloaded condition of the apparatus, the end regions of the spring extend at a predetermined upward inclination so that when a baby is placed in the harness, but is inactive (i.e. only its weight acts on the spring), the end regions of the spring flex downwards substantially to the same level as the central region (i.e. the spring becomes substantially straight and substantially horizontal). Then, only when additional downward force is applied do the end regions of the spring flex downwards and upon release flex back to enable bouncing.

The aforesaid initial upward curvature of the end regions of the transverse cantilever spring means maximises the deflection which can occur in the vertical direction and enhances the effectiveness of the spring so that the most efficient use is made of the available space.

Also, in advantageous embodiments of baby bouncer, within the scope of the invention, substantially non-flexible support means is provided beneath the cantilever spring means, i.e. at the side of the spring means from which the harness is suspended, so as to limit the deflection of the end regions of the spring means. The construction of such support means should be carefully

chosen to allow adequate flexure of the spring means for bouncing, but prevent excessive flexure, which might be brought about by too great a load being applied to the harness and could result if failure of the spring means. Thus, the support means is an important safety measure, substantially eliminating any risk of spring failure, which, if it occurred, could seriously injure the baby in the harness.

The support means advantageously takes the form of an arcuate bar. In this respect, the curvature of the support bar advantageously matches the chosen maximum flexed curvature of the spring means, so as to provide support over at least a large portion of the length of the spring at the limiting flexed position.

A further optional development in some embodiments of the bouncer of the invention is the provision of a free standing/self supporting frame to which the suspension means of the apparatus can be mounted. This obviates the need to have a doorway, or gateway of adequate height to accommodate the bouncer apparatus, and more importantly means that the location of the bouncer can be freely chosen and varied to suit the user, without any constraint owing to the position of a fixed overhead hook or the like, or of a doorway.

Such a frame conveniently comprises an upright generally inverted U-shaped portion, with respective limbs joined by an upper cross piece, supported upon a base portion, which may likewise have a U-shaped configuration or a closed, four sided configuration, and is intended to lie flat on the ground or floor. The upright portion is conveniently readily detachable from the base portion, for ease of storage and assembly. In this respect, the base portion is advantageously provided with respective sockets into which the lower ends of the limbs of the upright portion fit or respective spigots over which the end portions of the upright limbs will fit. Height adjustment is also a possibility by telescopic adjustment of the upright end portions relative to the sockets or spigots e.g. by lock nuts or the like engaging into selected apertures of a series of apertures provided in each component.

The upright and base portions of the frame are conveniently formed of tubular metal, e.g. aluminium or steel.

The crosspiece of the upright portion conveniently has a hook midway along its extent for attachment of the suspension areas of the remainder of the bouncer apparatus.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

A particular practical embodiment of the bouncer apparatus of the invention will now be described, with reference to the accompanying drawings, in which:

FIG. **1** is a schematic front view of this embodiment of bouncer; and

FIG. **2** is a schematic side view of the frame alone.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

As illustrated, the apparatus comprises a frame, designated generally by reference numeral **10**, and a bouncer which is suspended therefrom. These may be sold separately, or together.

The frame **10** comprises a U-shaped base portion **12** of tubular metal provided approximately midway along each side limb with respective, upwardly curving sockets **14**, and a U-shaped upright portion **16**, also of tubular metal. The sockets **14** are simply bolted to the insides of the side limbs of the base **12** and their positions can be varied by fixing them by way of alternate holes **18** provided along the limbs. The ends of the limbs of the upright portion **16** are inserted into the sockets **14** and additional, releasable fastening means may be provided. A hook **20** is connected to the upright portion **16**, approximately midway along its crosspiece **22**, so as to project downwardly in the erect condition of the frame **10**.

It will be appreciated that the frame **10** can readily be assembled from the component parts, namely base portion **12**, sockets **14**, upright portion **16**, hook **20**, and relevant bolts and/or other fastener means and placed at any desired position, and also readily dismantled and packed flat for storage.

The suspensible bouncer apparatus comprises suspension means in the form of a metal chain **24**, a transversely arranged cantilever spring **26**, in the form of an elongate steel strip of bowed configuration, a transverse support bar **28**, immediately below the spring **26**, and a harness **30** (for a baby) suspended by two cords or ropes **32** which are attached adjacent the respective ends of the spring **26**.

The spring **26** is, in this preferred embodiment, approximately 60 cm long and 2 cm wide. It is attached at approximately its mid point to the suspension chain **24**, by way of a connector **34**, so that, when suspended and without load, its end regions extend at an upward inclination. In this respect, the spring **26** is shown in three positions in FIG. **1**, the unloaded position being indicated by reference letter A. At its ends the spring **26** is provided with eyelets **38** for connection of the ropes **32**.

The spring **26** is selected to have appropriate initial curvature and springe characteristics for downward flexure of its end regions to positions B and C, as indicated in FIG. **1**, and for bouncing of the baby as already described in the introduction hereto. Position B represents the loaded condition of the spring **26**, when the baby is placed in the harness **30** but is inactive. The configuration of the spring under these conditions depends entirely on its spring characteristics and on the size of the load applied, but generally it should be approximately straight, i.e. horizontal. Position C represents the maximum downward flexure of the end regions of the spring **26**, and would normally be achieved only during bouncing. In FIG. **1** position C is in broken lines and the harness lines are not shown.

The support bar **28** is of substantially rigid (non-flexible) material and is mounted by way of the connector **34** in alignment with the cantilever spring **26** so that its middle region is immediately below the central region of the spring **26**. Indeed, the central region of the spring **26** ideally rests upon the central region of the support bar **28**. The support bar **28** is, however, arcuate, its end regions being curved downwardly, as indicated, so that, in the unloaded condition A of the spring **26** and also when the spring **26** is loaded to position B, i.e. such as to extend substantially horizontally, there is an increasing gap between the bar **28** and the spring **26** towards the respective ends thereof.

When a baby is installed in the harness **30**, its weight, acting via the ropes **32**, causes flexure of the spring **26** from position A with upwardly extending end regions to position B where the end regions have been brought down approximately to the level of the central region. Upon application of further downward force the end regions of the spring flex downwards, maximum permissible downwards flexure being defined by position C

where the spring **26** contacts and rests upon the bar **28**. When the additional downward force is released, bouncing of the baby ensues aided by return of the spring **26** to straight configuration or upward flexure, and continued oscillation.

It will be noted that the bar **28** is somewhat shorter than the spring, but that is not essential.

The advantages of the cantilever spring, support bar and dismantable frame have already been explained in the introduction, the transversely extending cantilever spring being especially important in taking the place of previous vertically hanging spring means and separate transverse bar for harness suspension, yet requiring far less head space for effective operation. In this respect, difficulties in successful operation of previous forms of bouncers have frenquently arisen owing to limited headspace, such that modifications are needed before the baby is correctly positioned for beneficial bouncing activity.

It should be understood that the above described embodiment is merely illustrative and not limitative of the scope of the invention. Many variations are possible, and some of these possibilities are hinted at or obvious from the general discussion preceding the specific embodiment.

I claim:

1. A baby bouncer apparatus comprising: a spring; overhead suspension means for suspending the spring, said spring being connected to the overhead suspension means; and a harness for receiving a baby which is suspended below the spring, said spring comprising elongate cantilever spring means having oppositely positioned end regions, said cantilever spring means being arranged transversely relative to the overhead suspension means and relative to the direction in which load is to be applied thereto, the harness being suspended from the respective end regions of the cantilever spring means.

2. A baby bouncer according to claim **1**, wherein the overhead suspension means comprises an inextensible metal chain.

3. A baby bouncer according to claim **1**, wherein the elongate cantilever spring means is a leaf spring.

4. A baby bouncer according to claim **2**, wherein the elongate cantilever spring means is a leaf spring.

5. A baby bouncer according to claim **2**, wherein the elongate cantilever spring means includes a central region disposed between the end regions, said elongate cantilever spring means having a curved profile under conditions of no load, such that its end regions, to which the harness is attached, are higher than its central region.

6. A baby bouncer according to claim **3**, wherein the elongate cantilever spring means includes a central region disposed between the end regions, said elongate cantilever spring means having a curved profile under conditions of no load, such that its end regions, to which the harness is attached, are higher than its central region.

7. A baby bouncer according to claim **4**, wherein the elongate cantilever spring means includes a central region disposed between the end regions, said elongate cantilever spring means having a curved profile under conditions of no load, such that its end regions, to which the harness is attached, are higher (i.e., further from the harness) than its central region.

8. A baby bouncer according to claim **5**, wherein the curvature of the elongate cantilever spring means under conditions of no load is equal, but opposite to, its maximum downward flexure in its fully loaded condition.

9. A baby bouncer according to claim **5**, wherein the spring tension of the elongate cantilever spring means is selected so that when a baby is placed in the harness, but is inactive, the end regions of the spring flex downwardly substantially to the same level as the central region so that the spring is substantially straight.

10. A baby bouncer according to claim **8**, wherein the spring tension of the elongate cantilever spring means is selected so that when a baby is placed in the harness, but is inactive, the end regions of the spring flex downwards substantially to the same level as the central region so that the spring is substantially straight.

11. A baby bouncer according to claim **1**, wherein substantially non-flexible support means is provided beneath the elongate cantilever spring means for limiting the downward deflection of the end regions of the spring means.

12. A baby bouncer according to claim **7**, wherein substantially non-flexible support means is provided beneath the elongate cantilever spring means for limiting the downward deflection of the end regions of the spring means.

13. A baby bouncer according to claim **10**, wherein substantially non-flexible support means is provided beneath the elongate cantilever spring means for limiting the downward deflection of the end regions of the spring means.

14. A baby bouncer according to claim **13**, wherein the support means is an arcuate bar, said arcuate bar having a curvature that matches a maximum flexed curvature of the elongate cantilever spring means to provide support over at least a portion of the length of the spring.

15. A baby bouncer according to claim **1**, wherein said overhead suspension means is connected to a free standing and self supporting frame.

16. A baby bouncer according to claim **7**, wherein overhead suspension means is connected to a free standing and self supporting frame.

17. A baby bouncer according to claim **14**, wherein overhead suspension means is connected to a free standing and self supporting frame.

* * * * *

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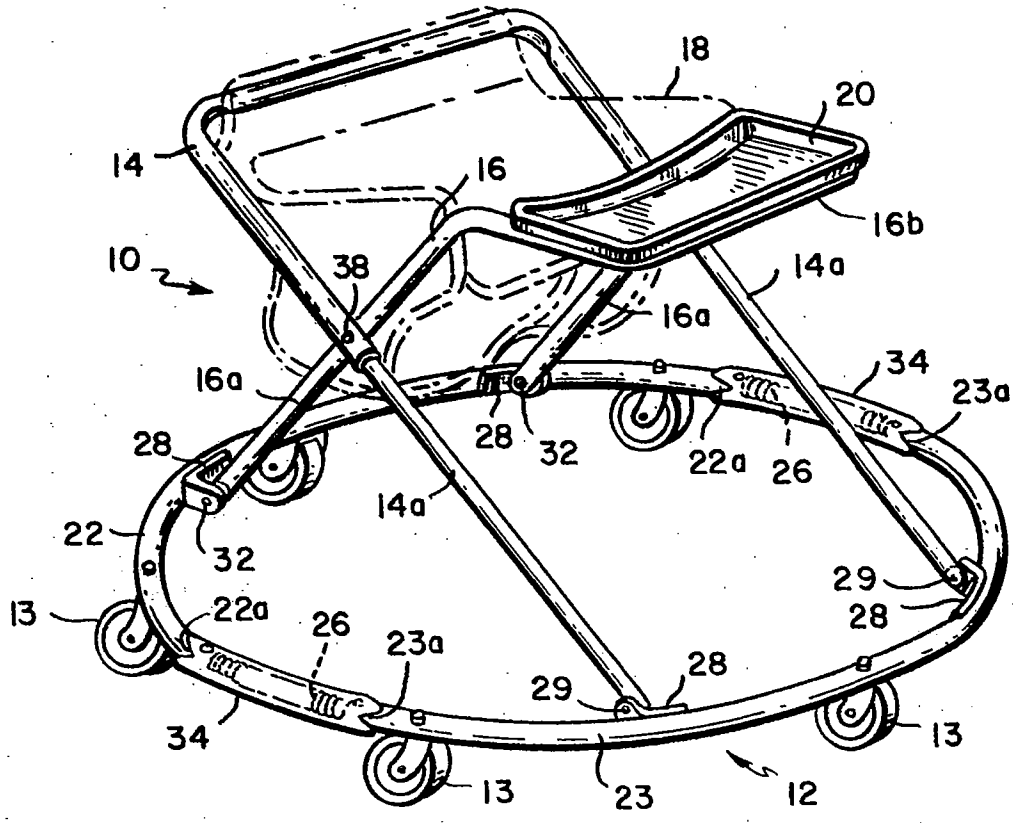
Japanese, **Patent** No. 666666

Available **Nov. 4, 1980**

[54] **FOLDABLE ROUND BOUNCER/WALKER**

ABSTRACT

A play seat includes telescoping scissor frames for supporting a seat above a base ring composed of two opposing arcuate ring sections whose opposite ends are connected together by stiff coil springs. The lower ends of the scissor frames are pivotally connected to the ring sections so that any weight in the seat tends to spread apart the ring sections thereby tensioning the springs whereby the seat is resiliently supported above the ground. Each spring is protectively enclosed within a plastic sleeve.



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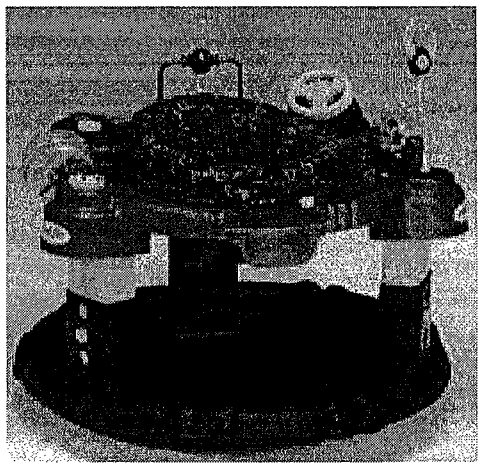

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clean. Please note: this is recommended for a child of at least 4 months (he must be able to hold his head up) until walking age.

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"H"

CHRONOLOGY

4 November 1980	Abstract of Japanese 666666 published in New Zealand
13 May 1993	US 5,201,693 published in New Zealand
1994	Copyright Notice on Megasaucer
1995	4B Limited receive sample of Megasaucer
7 March 1996	Filing date of provisional of NZ Patent No. 111111 Filing date of USSN 612,474
6 March 1997	CAP of NZ 111111 filed
23 December 1997	US 5,690,383 published in New Zealand
28 February 1998	NZ 111111 published
1 July 1998	NZ 111111 sealed
May 2003	4B Limited begin marketing 4B Bouncer
20 June 2003	4B Limited receive letter from A Inc.
July 2003	You access website advertising Megasaucer