July 9, 1963 M. D. WELSH 3,096,963

BABY JUMPER

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FIG. 1.

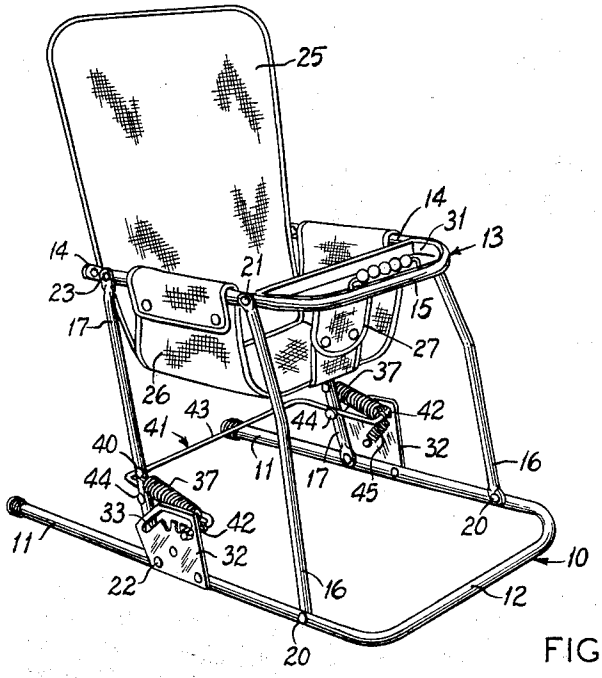


FIG. 3.

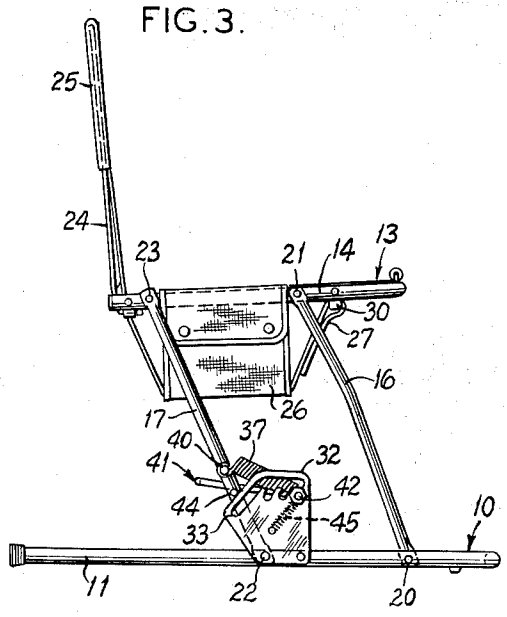
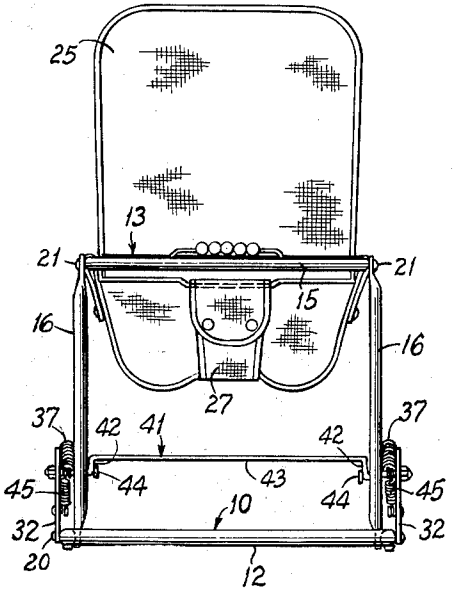


FIG. 2.



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FIG. 4.

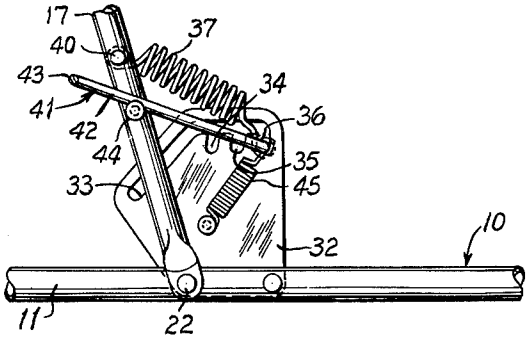


FIG. 5.

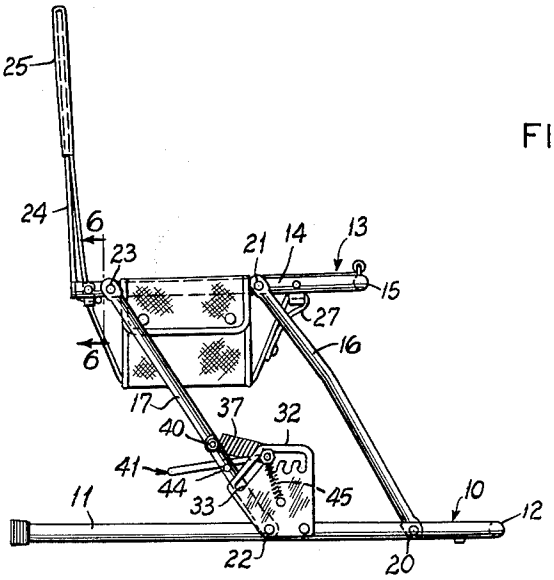


FIG. 6.

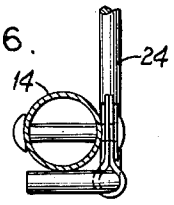
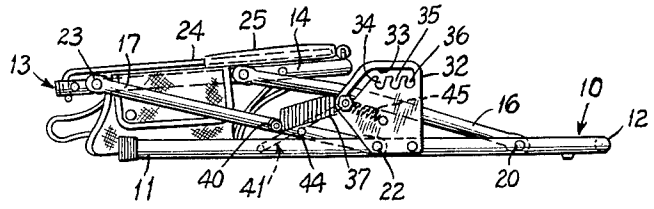


FIG. 7.



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BABY JUMPER

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Filed Feb. 15, 1961, Ser. No. 89,471
13 Claims. (Cl. 248—401)

This invention relates generally to improvements in a baby jumper, and more particularly to an improved mechanism for resiliently supporting a jumper in an erected position, yet enabling collapse or folding of the item when desired.

An important object is to provide a baby jumper that includes a seat supported above the ground by a frame capable of being moved from a folded to an erected position, the frame including support elements operatively interconnected by a resilient spring means that tends to maintain the jumper in an erected position yet permits controlled oscillating movement of the seat in an up and down direction under stressing of the spring means upon a jumping or bouncing action of the child seated in the jumper.

Another important object is achieved by the provision of a frame including four support elements pivoted together to complete a quadrangle for collapsibly supporting a seat above the ground, a spring means having one end connected to one of the support elements, and means adjustably locating and retaining the other end of the spring means to an adjoining support element incident to folding or erecting the jumper.

Other important advantages are afforded by a stop means adapted to retain or fix the adjustable spring end upon erection of the jumper so as to realize the springing movement of the frame actuated by the bouncing of the seated child.

Another important object is achieved by providing means for adjustably locating and fixing the spring means so that the jumper frame can be selectively erected to different heights to accommodate children of different sizes. In order for a child to take best advantage of the jumper, the heighth of the seat must be adjusted so that the child's feet can touch the ground. This condition enables the child to jump more easily and thereby enjoy the full play value of the item for which it was designed.

Yet another important object is to afford an improved mechanism mounting the spring means between the adjoining support elements of the frame for selectively maintaining the jumper in erected position or selectively permitting the jumper to be folded as mentioned previously.

An important object is achieved by the provision of a plate having an elongate slot within which one end of a lever is slidably received, the lever being attached to one end of the spring and being movable against a stop shoulder on the plate adjacent the slot incident to erection of the jumper frame so as to provide a spring anchorage.

Still another important object is achieved by providing a fulcrum for the lever on one of the support elements about which the lever can be swung incident to detaching the lever from the stop shoulder on the plate and thereby conditioning the jumper for heighth adjustment.

An important objective is achieved by the provision of a lever and the interconnection of the lever with its fulcrum and with its retaining means, whereby the operator simply depresses one end of the lever with the foot so as to detach the lever from its retaining means and thereby condition the jumper for adjustment of the frame.

Another important object is to provide a baby jumper that is simple and durable in construction, economical to manufacture and assemble, efficient in operation, and which can be quickly and easily erected or folded.

The foregoing and numerous other objects and advantages of the invention will more clearly appear from

the following detailed description of a preferred embodiment, particularly when considered in connection with the accompanying drawings, in which:

FIG. 1 is a perspective view of the baby jumper;

FIG. 2 is a front elevational view;

FIG. 3 is a side elevational view as seen from the left of FIG. 2;

FIG. 4 is an enlarged fragmentary side elevational view of the locking mechanism;

FIG. 5 is a side elevational view of the jumper showing the support elements of the quadrangle unlatched;

FIG. 6 is an enlarged cross sectional view of the seat support frame as seen along line 6—6 of FIG. 5, and

FIG. 7 is a side elevational view of the jumper in a folded position.

Referring now by characters of reference to the drawings, it is seen that the baby jumper frame includes a plurality of support elements. One of the support elements is a U-shaped horizontal base frame **10** adapted to rest on a supporting subjacent surface such as a floor. As is best illustrated in FIG. 1, the base frame **10** includes parallel spaced side frame members **11** interconnected at the front by a web portion **12**.

Located above the base frame **10** is a horizontal U-shaped seat support frame **13**. As is best seen in FIG. 1, the seat support frame **13** includes spaced parallel side members **14** interconnected at the front by a web member **15**.

The base frame **10** and seat support frame **13** are interconnected at each side of the jumper by a pair of braces **16** and **17**. More particularly, each front brace **16** has one end pivotally connected by pivot pin **20** to its associated side member **11** of base frame **10**, while the other end of each brace **16** is pivotally connected by pin **21** to its associated side member **14** of the seat support frame **13**. Braces **17** are spaced rearwardly from braces **16** and are maintained in substantially parallel relation. One end of each rear brace **17** is pivotally attached by pivot pin **22** to its associated side member **11** of the base frame **10**, while the opposite end of brace **17** is pivotally attached by pivot pin **23** to the associated side member **14** of the seat support frame **13**.

That portion of the base frame **10** located between the pivot pins **20** and **22**, and that portion of the seat support frame **13** located between the pivot pins **21** and **23**, together with the braces **16** and **17** at each side of the jumper, afford a quadrangle. This mechanism serves to hold and maintain the seat support frame **13** in parallel relation to the base frame **10** and hence parallel to the floor, at all times and in all adjusted heighth positions. The seat support frame **13** is parallel to the base frame **10** when in a folded position as is best seen in FIG. 7, is parallel when fully erected as is seen in FIG. 3, and is maintained in parallel relation in all adjusted positions in between while being erected or folded as suggested in FIG. 5.

A U-shaped wire frame **24** is pivoted to the rear of the seat support frame **13** just forwardly of the pivot pins **23** forming the attachment for rear braces **17**. A fabric seat having a back portion **25** formed as a pocket is slipped over the back frame **24**.

The side panels **26** of the fabric seat are folded and snapped over the side members **14** of the seat support frame **13**, while the forward portion of the seat is supported by a fabric strip **27** snapped on to a cross rod **30** extending between the two rearwardly projecting side members **14**. This cross rod **30** may also support the rear portion of a tray **31**, the tray being supported at its forward edge by the web member **15** of the seat support frame **13**.

The mechanism that maintains the baby jumper in its erect position, which provides resiliency to the jumper,

and which permits quick and easy erection and collapse of the item is shown in FIGS. 1–3 and is shown in greater detail in FIG. 4.

Attached to the outside of base frame 10 at each side of the jumper, is a plate 32. Specifically, the plate 32 overlaps pivot pin 22.

Formed in plate 32 is an elongate slot 33 that extends generally in a fore and aft direction. As is best seen in FIG. 4, the slot 33 is inclined slightly upwardly from its rearmost limit, and thence extends substantially horizontally to its foremost limit. A plurality of offset notches 34, 35 and 36 are formed in spaced relation along slot 33. These notches are best illustrated in FIG. 4. The rear edges defining the notches 34–36 constitute stop shoulders.

While the embodiment disclosed and presently described shows a total of three notches 34–36, it will be understood that the jumper can be advantageously utilized with only a single notch and that additional advantages and functional results can be obtained by using two or more such notches, all as will be explained subsequently.

At each side of the jumper is a coil spring 37, the coil spring 37 having one end attached to rear brace 17 by pin 40 and having the opposite end attached to a lever 41. More particularly, the lever 41 is of generally U-shaped construction having spaced side arms 42 and an interconnecting web portion 43. The lever 41 extends transversely of the baby jumper frame. The outer ends of the side arms 42 of the lever 41 are slidably received in slots 33 formed in the laterally spaced plates 32. The size of lever 41 is such that it can slidably move along slots 33 and move selectively into any one of the offset notches 34–36.

A fulcrum member 44 is attached to and carried by each of the rear braces 17. The side arms 42 of the U-shaped lever 41 seat on top of the fulcrum members 44. It will be importantly noted that the lever 41 slidably engages the fulcrum members 44 to permit pivotal movement of the rear braces 17 under loading of spring 37 when the lever is attached in one of the notches 34–36.

A pair of second springs 45 interconnect the lever 41 with each of the side plates 32. More particularly, one end of each of the second springs 45 is attached to its associated plate 32 while the opposite end of such spring is attached directly to the end of the side arm 42 of lever 41. It will be realized that the second springs 45 tend to urge the outer ends of the lever 41 downwardly in a direction toward and into the notches 34–36.

The transverse web portion 43 of lever 41 is located rearwardly of the rear braces 17 and is disposed in a position so that it is readily accessible to the foot of the operator erecting, folding or adjusting the heighth of such baby jumper. The operator merely steps on the web portion of lever 41, thereby depressing such web portion 43 to swing the lever 41 about the fulcrum members 44. This action raises the forward ends of the lever 41 so that they clear the plate notches 34–36, and thereby permits collapse or erection of the jumper.

It is throught that the operational and functional advantages of the baby jumper have become fully apparent from the foregoing detailed description of parts, but for completeness of disclosure, the erection and folding of the jumper to various heights will be briefly set forth.

It will be assumed that the baby jumper is in a completely collapsed condition as is illustrated in FIG. 7. In this position, the braces 16 and 17 are folded rearwardly so that the seat support frame 13 is located closely adjacent the base frame 10. Moreover, the wire frame 24 of the seat back rest is folded forwardly so as to lie substantially flat over the seat support frame 13. The outer ends of U-shaped lever 41 are moved to their rearmost position in plate slots 33. It is preferred that springs 37 are unstressed when the jumper is folded.

In order to erect the baby jumper fully, the seat support frame 13 is gripped and moved upwardly and forwardly as permitted by the pivoted braces 16 and 17. Upon erection, the side arms 42 of the lever 41 move upwardly and forwardly in the plate slots 33 until the outer ends are aligned with the foremost notches 36. Springs 45 move the lever ends into the notches 36 so that they operatively engage the stop shoulders partially defining the notches 36. The seat support frame 13 is maintained in a horizontal position parallel to the base frame 10 by the quadrangle afforded by the support elements as described previously. Then, the U-shaped wire frame 24 is raised, and the item is conditioned to receive the child.

The springs 37 tend to urge the braces 16 and 17 in a clockwise direction as viewed in FIG. 3, and hence tend to urge the frame to a fully erected position as shown. A child seated in the jumper can bounce or jump while playing. Such action causes the seat to move downwardly against the loading of springs 37. After the seat has moved downwardly to a limited extent under the resilient action of springs 37, the springs 37 then act to raise the seat back to its fully erected position. Thus it is seen that the child by its own actions while seated in the jumper can cause the seat to move resiliently in an up and down direction to a limited extent, all of which action and movement greatly pleases a child of tender years.

In order for the child to obtain the maximum amount of enjoyment from the jumper, it is desirable that the child's feet touch the floor. Obviously, when the child's feet touch the floor it is easier for the child to bounce or jump while seated.

The fully erected position of the jumper as is illustrated in FIG. 3, accommodates the larger child for which this jumper is designed. A smaller child when seated in the jumper while fully erected would be at a disadvantage because the child's feet would not touch the floor. Therefore, it is desirable that the seat of the jumper be lowered slightly or sufficiently so that the smaller child's feet can touch the floor while the child is seated.

In lowering or adjusting the heighth position of the seat to accommodate the smaller child, the web portion 43 of U-shaped lever 41 is depressed to swing the lever about the fulcrum members 44, whereby to raise the forward ends of the lever out of the plate notches 36. Then, the seat is moved rearwardly and downwardly as permitted by the pivoted braces 16 and 17. The springs 37 that are attached to the lever 41 move the lever 41 rearwardly along slots 33 until the forward ends of the lever come opposite either of the other notches 34 or 35. Assuming that it is desired to have the lever 41 move into the intermediate notches 35, the springs 45 again tend to urge the lever into such notches and the braces 16 and 17 will be inclined rearwardly to a greater degree than such braces are inclined when fully erected as shown in FIG. 3. Consequently, the seat support frame 13 is brought closer to the base frame 10 and the seat is located in a lower heighth position.

Of course, if necessary, depending upon the size of the child utilizing the jumper, the seat can be brought to a still lower heighth position by moving the lever 41 into the rearmost notches 34 upon releasing the lever 41 and resetting it in the manner previously described.

In order to collapse the jumper frame fully, the lever 41 is removed from the notches in which it is located and moved rearwardly in plate slots 33 to the rearmost position illustrated in FIG. 7. The seat support frame 13 is consequently moved to a position closely adjacent the base frame 10 as permitted by the pivotal action of braces 16 and 17.

It will be importantly noted that the lever 41 and its coacting fulcrums 44 facilitate the latching and unlatching of the jumper frame incident to folding or erecting the jumper or adjusting its heighth.

Although the invention has been described by making

detailed reference to a single preferred embodiment, such detail is to be understood in an instructive, rather than in any restrictive sense, many variants being possible within the scope of the claims hereunto appended.

I claim as my invention:

1. In a collapsible baby jumper, a frame comprising a generally horizontal base frame, a seat support above the base frame, and a pair of braces pivoted to the base frame and to the seat support to complete a quadrangle, a plate attached to said base frame, the plate being provided with a guide means and a stop shoulder, a rod slidably received in said guide means, spring means connecting said rod to one of said braces, said rod being movable against said stop shoulder for retention when said spring means is stressed to maintain said jumper in an erect position, and means engaging said rod to provide a fulcrum about which the rod can be selectively moved to detach the rod from said stop shoulder.

2. In a collapsible baby jumper, a frame comprising a generally horizontal frame base, a seat support above the base frame, and a pair of braces pivoted to the base frame and to the seat support to complete a quadrangle, a plate attached to said base frame, the plate being provided with a slot and an offset notch, a rod slidably received in said slot, a first spring connected at one end to one of said braces and connected at the other end to said rod, said rod being movable into said notch for retention when said spring is stressed to maintain said jumper in an erect position, a second spring connected to said rod and tending to hold said rod in said notch, and means engaging said rod to provide a fulcrum about which the rod can be selectively moved to detach the rod from said notch.

3. In a collapsible baby jumper, a frame comprising four support elements, means pivotally joining said support elements together to form a quadrangle for collapsibly supporting a seat above the ground, means including a stop shoulder attached to one of said support elements, a lever having one end selectively engageable with said stop shoulder, spring means interconnecting said lever with an adjoining support element, said lever maintaining said jumper in an erect position when said spring means is stressed, and a fulcrum member on one of said support elements engaging said lever between the ends of said lever, said lever having its opposite end extending beyond said fulcrum member and being selectively movable about said fulcrum member to detach said one end of the lever from said stop shoulder.

4. In a collapsible baby jumper, a frame comprising four support elements, means pivotally joining said support elements together to form a quadrangle for collapsibly supporting a seat above the ground, a plate attached to one of said support elements, the plate being provided with a slot and an offset notch, a lever having one end slidably received in said slot, spring means operatively interconnecting said lever with an adjoining support element, said lever being movable into said notch for retention when said spring means is stressed to maintain said jumper in an erect position, and a fulcrum member carried by one of said support elements, said lever seating on said fulcrum member and being selectively movable about said fulcrum member to detach the lever from said notch.

5. In a collapsible baby jumper, a frame comprising four support elements, means pivotally joining said support elements together to form a quadrangle for collapsibly supporting a seat above the ground, a plate attached to one of said support elements, the place being provided with a slot and an offset notch, a lever having one end slidably received in said slot, a spring connected at one end to an adjoining support element and connected at the other end to said lever, said lever end being movable into said notch for retention when said spring is stressed to maintain said jumper in an erect position, a fulcrum member carried by one of said support elements, the lever slidably seating on the fulcrum member, and said lever being movable about said fulcrum member to detach the lever end from said notch.

6. In a collapsible baby jumper, a frame comprising four support elements, means pivotally joining said support elements together to form a quadrangle for collapsibly supporting a seat above the ground, a spring connected at one end to one of said support elements, a lever having one end connecting the other end of said spring to an adjoining support element for retention when said spring is stressed to maintain said jumper in an erect position, the lever having its fulcrum on one of said support elements, said lever being slidably seated on said fulcrum between the ends of said lever, the opposite end of the lever being selectively movable about said fulcrum for selectively disconnecting the said one lever end and its associated spring end so as to permit folding of the jumper.

7. In a collapsible baby jumper, a frame comprising a generally horizontal base frame, a seat support above the base frame, and a pair of braces pivoted to the base frame and to the seat support to complete a quadrangle, a fulcrum member carried on one brace, a lever slidably seating on said fulcrum, said lever having one end extending forwardly of said fulcrum, spring means operatively connecting one of said braces with the forward end of said lever, means detachably retaining the forward end of said lever when said spring means is stressed to maintain said jumper in an erect position, the opposite rear end of said lever being selectively swingable about said fulcrum to detach the forward end of said lever so as to permit folding of said jumper.

8. In a collapsible baby jumper, a frame comprising a generally horizontal base frame, a seat support above the base frame, a front brace and a rear brace pivoted to the base frame and to the seat support to complete a quadrangle, a plate attached to said base frame adjacent said rear brace, said plate being provided with an elongate slot having an offset notch, a fulcrum member carried by said rear brace, a lever having its forward end received in said slot, said lever extending rearwardly of said fulcrum member, a spring connected at one end to said rear brace and connected at the other end to the front end of said lever, said front end of said lever being movable into said notch for retention when said spring is stressed to maintain said jumper in an erect position, said lever being selectively movable against said fulcrum member and being selectively swingable about said fulcrum member to detach the front end of said lever from said notch to permit folding of said jumper.

9. In a collapsible baby jumper, a generally horizontal base frame, a seat support above the base frame, at least one brace pivoted to the base frame and to the seat support, a plate attached to said base frame, the plate being provided with a slot and an offset notch, a lever slidably received in said slot, a spring connected at one end to said brace and connected at the other end to said lever, said lever being movable selectively into said notch for retention when said spring is stressed to maintain said jumper in an erect position, and a fulcrum member carried by said brace, said lever being selectively movable against said fulcrum member and being selectively swingable about said fulcrum member to detach said lever from said notch to permit folding.

10. A collapsible baby jumper comprising a generally horizontal base frame, a seat support above the base frame, frame means interconnecting each side of said seat support to said base frame, each frame means including a pair of braces pivoted to said seat support and to said base frame to complete a quadrangle, means on said base frame including a stop shoulder, a lever, at least one spring having one end connected to one of said braces and having the other end connected to said lever, said lever having one end selectively movable against said stop shoulder for retention when the spring is stressed to maintain said jumper in an erected position, means guiding said lever toward and away from the stop shoulder, and a ful-

crum member against which the lever is selectively swung to detach the lever from said stop shoulder and thereby permit folding of said jumper, said fulcrum member slidably seating the lever between its ends so that the opposite end of the lever extends beyond the fulcrum member for actuation incident to detaching the said one end of the lever from the stop shoulder.

11. A collapsible baby jumper comprising a generally horizontal base frame, a seat support above the base frame, frame means interconnecting each side of said seat support to said base frame, each frame means including a pair of braces pivoted to said seat support and to said base frame to complete a quadrangle, a plate attached to said base frame, the plate including guide means and a stop shoulder, a U-shaped lever having spaced side arms and an interconnecting web portion, one of said side arms of said lever being connected to the guide means of said plate, at least one spring having one end connected to one of said braces and having the other end connected to said lever, the said one side arm of said lever being selectively movable against said stop shoulder for retention when the spring is stressed to maintain said jumper in an erected position, and a fulcrum member carried by one of said braces, said lever engaging said fulcrum, the web portion of said lever being adapted for actuation to swing the lever incident to detaching the side arms from said stop shoulders to permit folding of the jumper.

12. A collapsible baby jumper comprising a generally horizontal base frame, a seat support above the base frame, frame means interconnecting each side of said seat support to said base frame, each frame means including a pair of braces pivoted to said seat support and to said base frame to complete a quadrangle, a plate attached to each side of said base frame, said plate being provided with a slot and a notch, a U-shaped lever having spaced side arms and an interconnecting web portion, said side arms of said lever being received in said slots of said plates, the interconnecting web portion of said lever extending between the frame means at each side of the

jumper, spring means interconnecting said lever with one of said braces, the said arms of said lever being selectively movable into said notches for retention when the spring means is stressed to maintain said jumper in an erected position, a fulcrum member carried by one of the braces at each side of the jumper, the said arms of said lever being slidably seated on said fulcrum members, the web portion of said lever being adapted for actuation to swing the lever about said fulcrum members to detach the lever from said notches incident to conditioning the jumper for folding.

13. A collapsible baby jumper comprising a generally horizontal base frame, a seat support above the base frame, frame means interconnecting each side of said support to the base frame, each frame means including a pair of braces pivoted to said seat support and to said base frame to complete a quadrangle, a plate attached to said base frame at each side of the jumper, each plate being provided with a slot and an adjacent notch, a substantially U-shaped lever having spaced side arms and an interconnecting web portion, the side arms of said lever being slidably received in the slots of said plates, a first spring means connected at one end to one of said braces and connected at the other end to said lever, the side arms of said lever being movable into said notches for retention when said first spring means is stressed to maintain said jumper in an erect position, a second spring means connected to said lever and tending to hold said side arms of said lever in said notches, and a fulcrum member carried by one of the braces of each frame means, the said arms of said lever slidably seating on said fulcrum members, the web portion of said lever being adapted for actuation to swing the lever about said fulcrum members incident to detaching the side arms of said levers from said notches, whereby to permit folding of the jumper.

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