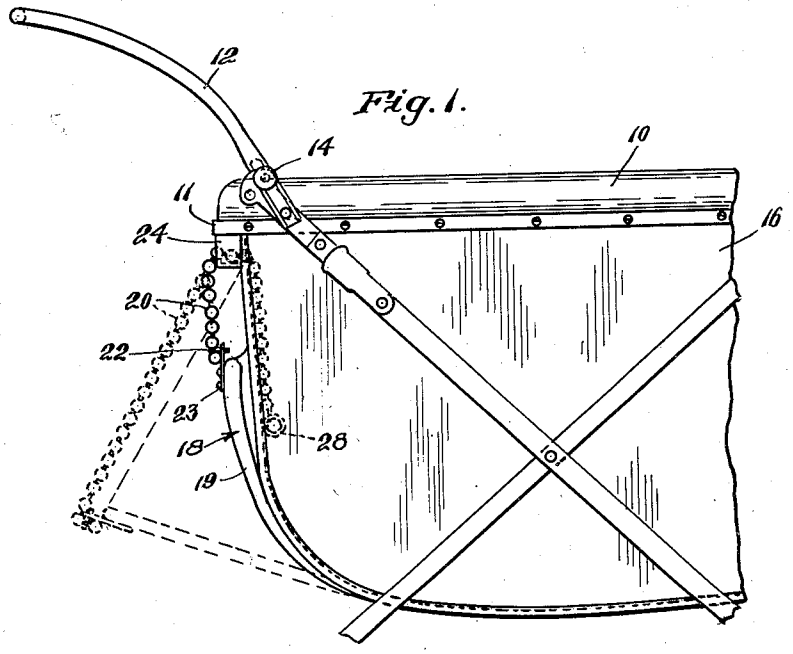
Dec. 27, 1949 A. M. BOUDREAU 2,492,209

BABY CARRIAGE FOOT EXTENSION CONTROL DEVICE

Filed May 6, 1947 2 Sheets-Sheet 1

Fig. 1.



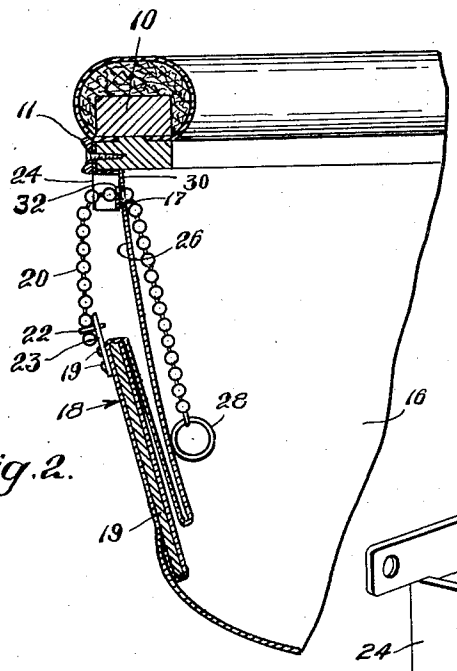




Fig. 2.

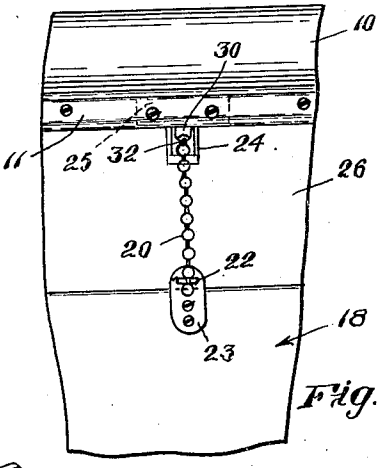



Fig. 3.

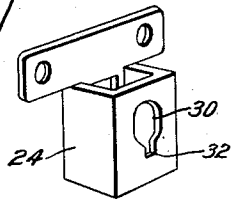



Fig. 3a

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BABY CARRIAGE FOOT EXTENSION CONTROL DEVICE

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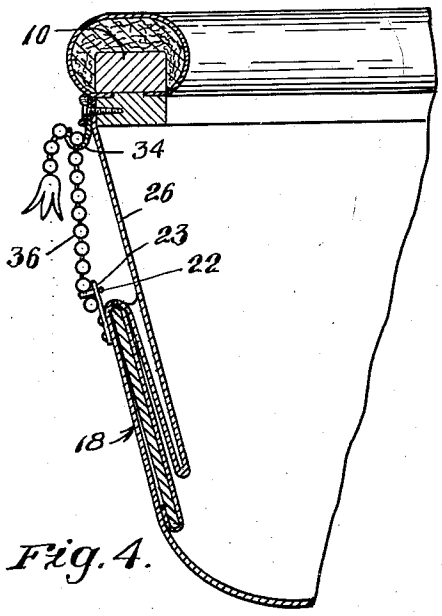



Fig. 4.

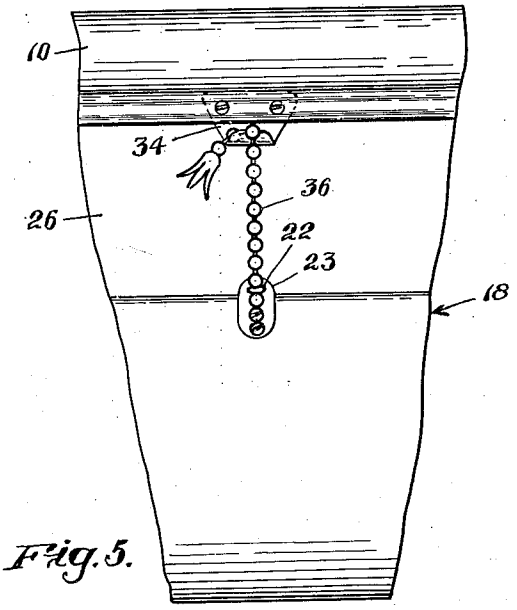



Fig. 5.

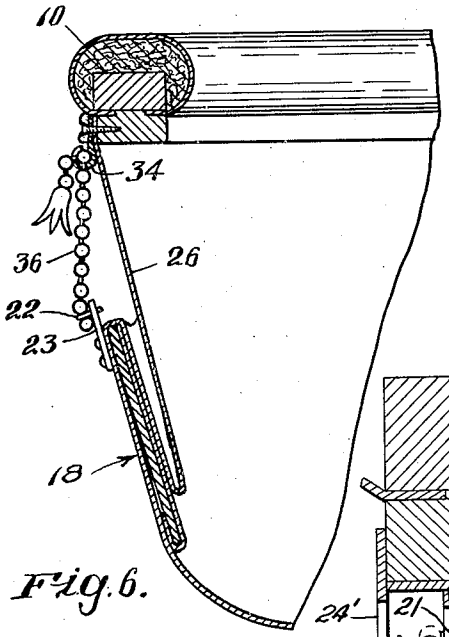



Fig. 6.

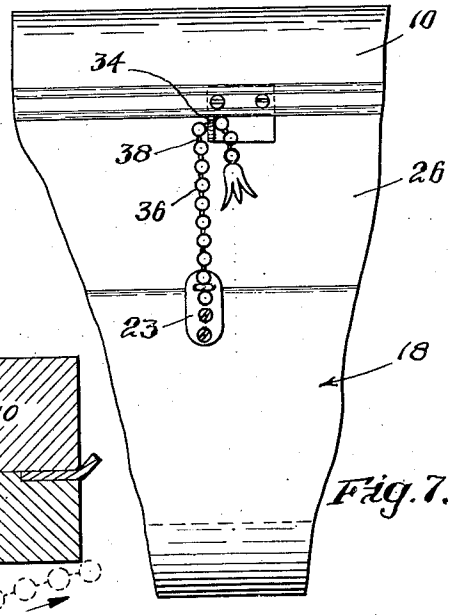



Fig. 7.

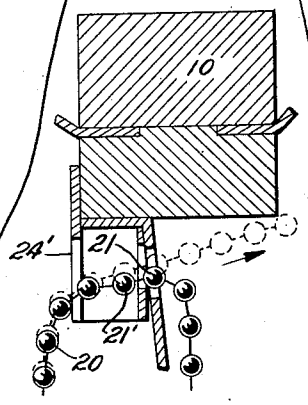



Fig. 3b

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# UNITED STATES PATENT OFFICE

2,492,209

## BABY CARRIAGE FOOT EXTENSION CONTROL DEVICE

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Application May 6, 1947, Serial No. 746,206

5 Claims. (Cl. 296—27)

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This invention relates to improvements in baby carriages and the like, and more particularly to improved means for closing and securing closed the drop front or foot extension for the body of such carriages.

The customary drop front or foot extension for the body of baby carriages comprises an excess of the flexible sheet wall material of the body at the front end, including a covered stiff board or the like which may be let down to provide an extra interior region into which the feet of an occupant of the carriage may extend, with the said stiff board constituting the bottom or floor of the foot region. At other times, the stiff part or floor of the foot extension may be swung upward to a generally vertical closed position with the excess of flexible body material folded at the inner side thereof. Heretofore, the stiff floor of the extension has been releasably held in its generally upright closed position by a leather strip which customarily is anchored at one end to the upper edge portion of the stiff floor portion, with means at its free end for releasably fastening the strap to the top frame of the carriage body, as by a snap fastener or by buttoning the strap to the top frame, or engaging a projection on the top frame through a hole in the strap. However, in collapsible carriages a collapsing of the carriage body must be preceded by a release of the foot extension. Otherwise, the stiff, generally vertical portion of the foot extension will interfere with the collapsing and frequently results in tearing of the body fabric. Hence, in collapsible baby carriages, it is highly desirable that the means for retaining the foot extension in closed condition be automatically releasable in response to any initial depression of the body top frame in the process of collapsing the carriage. Also, it is desirable to avoid exterior projections which are capable of injuring a person accidentally coming in forcible contact therewith or on which articles of clothing may catch and be torn.

It is among the objects of the present invention to provide closing and securing means for the foot extension of a baby carriage which requires no particular precision in its manufacture or mounting on a carriage and which automatically releases the foot extension in response to the initial collapsing depression of the top frame of the carriage body.

Another object is to provide for drawing the foot extension of a baby carriage to closed position and for securing it closed by means which may be entirely exteriorly of the carriage body or which may extend through a wall of the body for operation from the interior of the body.

A further object is to provide a closing and securing means for the foot extension of a carriage body comprising a flexible tension element on the foot extension by which the foot extension may be drawn closed, and having spaced means along the tension element any suitably located one of which spaced means is adapted to coact with a keeper on the body top frame for releasably securing the foot extension closed, and automatically releasable in response to substantial diminution of the tension on the said flexible tension element.

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Yet another object is to provide an automatically releasable closing and securing means for the foot extension of a baby carriage comprising, in the main, a beaded tension element having an attractive ornamental effect exteriorly of the body as compared with the prior comparable devices which have involved relatively unsightly exposed mechanisms having objectionable and hazardous substantial projections thereon.

It is, moreover, my purpose and object generally to improve the structure, operation and general appearance of devices for controlling the foot extension of baby carriages and the like.

In the accompanying drawings:

Fig. 1 is a side elevation of a collapsible baby carriage body with foot extension and control means embodying features of the invention;

Fig. 2 is a medial cross-sectional view on a larger scale through the top frame and foot extension of the carriage of Fig. 1;

Fig. 3 is a fragmentary elevation of the foot extension control means looking from the left in Fig. 2;

Fig. 3*a* is a perspective view of the keeper element of Figs. 1–3, on a larger scale;

Fig. 3*b* is a medial cross-sectional view of the mounted keeper element of Fig. 3*a*, showing the tension element engaged therein, and showing, in dotted lines, the manual release of the tension element;

Fig. 4 is a view similar to Fig. 2 but showing a modified form of foot extension control means;

Fig. 5 is a view similar to Fig. 3 but showing the modified form of foot extension control means of Fig. 4;

Fig. 6 is a view similar to Figs. 2 and 4 but having another modified form of foot extension control means; and

Fig. 7 is a view similar to Figs. 3 and 5 and showing the Fig. 6 form of foot extension control means.

Referring to the drawings, the carriage body shown in Fig. 1 is of the collapsible type whose padded top frame 10 is depressible toward the chassis (not shown) when the pusher handle 12 is released at 14 and swung over upon the top frame. The body walls 16 are of flexible fabric which can fold in the collapsing process.

A usual foot extension is indicated generally at 18, at the pusher end of the body, it being shown

by full lines in closed condition and by dotted lines in open condition.

In the form of the invention represented in Figs. 1–3, the foot extension is controlled by a flexible tension element 20 which conveniently may be a suitable length of conventional beaded chain, anchored at one end 22 to the foot extension and extending through a keeper 24 on the top frame and through the fabric end wall 26 of the carriage body with its free end portion hanging within the body. A ring 28 at the end of the chain facilitates manual openings and closings of the foot extension from the interior of the body.

As best seen in Figs. 2 and 3, the keeper 24 may be a generally rectangular hollow member seated under the outer marginal portion of the body top frame 10, with the vertically projecting plate part 25 for securing the keeper in place. The usual trim strip 11 may extend in covering relation to the plate part 25.

The flexible end wall 26, as shown, extends downward from the top frame 10 at the inner side of the keeper 24 and has an opening 17 therethrough for passage of the tension element 20. The adjacent wall of the keeper also has an opening therethrough at 30 for free passage of the tension element, and has a notch 32 extending downward from opening 30 into which the link connectors between beads of the tension element may be inserted, with a bead engaged against each side of the notched keeper wall. Hence the tension element may be releasably secured to the notched wall at selected locations along the element.

The side of the keeper opposite the notched wall may be open for free passage of the tension element from the foot extension to the notched wall, whence any excess of length of the tension element hangs down interiorly of the carriage body.

The outer end of the tension element 20 may have its securement at 22 to a plate element 23 attached to the covered relatively stiff portion 19 of the foot extension.

It is a feature of manufacturing importance that it makes no material difference whether the plate 23 is precisely located in vertical alignment with keeper 24 because the flexible tension element 20 can extend through the keeper and effectively perform its functions regardless of any precise relative locating of the keeper and plate 23. Also, with the invention, it becomes unimportant that the keeper and plate 23 may vary as to vertical spacing on different carriages, because the tension element and keeper can coact to secure the foot extension closed regardless of such variations. Yet, in every case, the securement of the foot extension closed is of a nature to automatically release the foot extension in response to any substantial depression of the top frame relative to the foot extension, as in response to an initial collapsing movement of the top frame. This automatic release is of extreme importance in collapsible carriages to avoid interference with the collapsing and possible tearing of the body fabric as a result of a foot extension continuing secured in closed condition when a collapsing of the carriage is attempted. According to the invention, initial depression of the top frame releases the tension element 20 from notch 32 of the keeper 24 and the weight of the foot extension causes it to drop to open position with the tension element riding freely through the keeper. With the prior non-automatic foot extension securing devices, it frequently happens that a user of the carriage neglects to manually release the foot extension before collapsing the carriage with dire consequences.



Prior devices intended to provide automatic release of the foot extension have involved conspicuous exterior depending metal straps and projecting hooks which have required precise relative positioning in order to function properly. For example, if the coacting elements were even slightly misaligned, securement of the foot extension was made difficult, and frictional rubbing of the inter-engaged elements frequently has been such as to interfere with a desired free-acting automatic release. Also, unless the coacting securing means were precisely spaced vertically on the carriage, their coaction has been generally unsatisfactory. For example, if the spacing were more than the predetermined precise spacing, the foot extension has had to be drawn upward an extra distance with an undesirable and unsightly wrinkling of the body fabric.

My present invention avoids all of the mentioned undesirable attributes of the prior foot extension securing devices and in addition provides an attractive and decorative addition to the carriage which is free of any prominent projection on which a person may be injured or on which articles of clothing may catch and be damaged. Also, in the Figs. 1–3 form, the foot extension may be manually operated and controlled from within the carriage body.

However, it will be readily appreciated that the mentioned advantages of the invention are not limited to having the tension element extending to the interior of the carriage body. As illustrated in Figs. 4–7, generally similar results and advantages may be attained with the automatically releasable tension securing device entirely exteriorly of the carriage body. In the Figs. 4 and 5 form, a centrally notched hook element 34 is secured in depending relation on the top frame, and a relatively short beaded tension element 36 is conveniently manually engageable in the notch. The hook element 34 needs to have only relatively little hook-projection and may be positioned substantially entirely under the top frame, as shown in Fig. 4. The form shown in Figs. 6 and 7 is generally similar to the Figs. 4 and 5 form but having a hook element 38 in which the tension element 36 is laterally engageable. In both modifications, however, the beaded tension element 36 becomes automatically disengaged in response to depression of the top frame 10 relative to the foot extension.

Referring more particularly to the Figs. 1–3 form, as shown in detail on a larger scale in Figs. 3*a* and 3*b*, the rectangular hollow keeper member 24 has a large rectangular opening 24′ in its wall through which the beaded chain enters the keeper from its point 22 of securement to the foot extension 18. The opposite wall of the keeper member 24 has the opening 30 and notch 32 therein which together form a key-hole slot as best seen in Fig. 3*a*. Notch 32 is both narrow and shallow and, when the chain is taut in retained condition, the retaining bead, indicated at 21 in Fig. 3*b*, is tightly drawn into frictional engagement with the edges of the notch 32 while the bead 21′ at the opposite side of the notched wall is tending to move away from the wall. Actually the adjacent beads, such as beads 21, 21′, in Fig. 3*b*, are spaced apart slightly more than the thickness of the notched wall to enable a chain link connector to readily enter the notch

32, and also to permit slight yielding of bead 21' toward the notched wall when the free end of the chain is manually lifted and drawn tight, with accompanying relieving of the friction between bead 21 and the notch edges. Apparently, as the manual pull on the chain is continued with simultaneous lifting of the gripped free end portion thereof, the bead 21' rides up the notched wall to permit elevation of the link connector out of the notch 32 without the gripped portion of the chain being elevated enough to engage the inward projecting portion of the top frame of the carriage body, this movement of bead 21' slightly toward the notched wall and appreciably upward along the slot edges effecting increase of tension in the portion of the chain between the keeper and the foot extension 18. When the link connector has been elevated out of notch 32, and the chain released, the gravity drop of the foot extension draws the chain rapidly through the keeper with the beads riding over the entrance to notch 32 so rapidly that a link connector has no opportunity to drop into the notch.

Automatic release of the chain from keeper 24, in response to collapsing of the carriage, occurs as a result of reduced tension in the chain which is due to sudden downward movement of the keeper and a slight delay in downward swinging of the foot-rest, due to inertia of the latter. During this moment of reduced tension in the chain, the bead 21' is nudged upwardly enough to displace the link connector and bead 21 upwardly enough for the beads to ride over the notch edges when the foot extension swings downward by gravity. Apparently the mentioned upward nudging of bead 21' is due to inertia of the chain although the chain, or a portion thereof adjacent to bead 21', seems to stiffen and act as a bead-displacing strut when the body is suddenly moved downward in the collapsing process. In any event, the chain becomes automatically released in response to downward collapsing movement of the carriage top frame, and the beads slip through the keeper when the foot extension drops.

I claim as my invention:

1. In a baby carriage having a body including an openable and closable foot extension at one end of the body, said foot extension being flexibly connected along its lower generally horizontal edge to the wall of the body at said one end, and there being a folded excess of a flexible portion of said body wall connected to the upper edge portion of the foot extension, whereby the foot extension tends to open downward by gravity, means for controlling the foot extension comprising a flexible tension element secured at one end to the foot extension, a keeper element secured to an upper portion of the carriage body at the foot extension end thereof, said keeper having a notched wall in whose notch the said flexible tension element is engageable, and a series of spaced-apart abutments on said tension element selectively engageable with the edges of said notch on that side of the notched wall which is more remote from the foot extension, for effecting a releasable securement of the tension element in the keeper element thereby to secure the foot extension releasably in selected positions with the foot extension tending by gravity to a fully open position and thereby exerting a normal tension on said tension element, said securement of the tension element being readily manually releasable in response to pull applied to the free end portion of the tension element, followed by release of said free end portion, and being automatically releasable in response to depression of the keeper element relative to said foot extension, a said depression of the keeper element momentarily reducing the tension in said tension element, due to the inertia of the foot extension, whereby the tension element becomes free to slip past the keeper element when the foot extension drops by gravity toward its said fully open position.

2. In a baby carriage having a body including a top frame portion and an openable and closable foot extension portion at one end of the body, said foot extension being flexibly connected along its lower generally horizontal edge to the wall of the body at said one end, and there being a folded excess of a flexible portion of said body wall connected to the upper edge portion of the foot extension, whereby the foot extension tends to open downward by gravity, means for controlling the foot extension comprising a flexible tension element secured at one of its ends to one of said portions, a keeper element secured to the other of said portions, said keeper having a notched wall in whose notch the said flexible tension element is engageable, and a series of spaced-apart abutments on said tension element selectively engageable with the edges of said notch on that side of the notched wall which is more remote from the foot extension, for effecting a releasable securement of the tension element in said keeper element thereby to secure the foot extension releasably in selected positions with the foot extension tending by gravity to a fully open position and thereby exerting a normal tension on said tension element, said securement of the tension element in the keeper being readily manually releasable in response to pull applied to the free end portion of the tension element, followed by release of said free end portion, and being automatically releasable in response to depression of the keeper element relative to said foot extension, a said depression of the keeper element momentarily reducing the tension in said tension element, due to the inertia of the foot extension, whereby the tension element becomes free to slip past the keeper element when the foot extension drops by gravity toward its said fully open position.

3. In a baby carriage having a body including a top frame portion and an openable and closable foot extension portion at one end of the body, said foot extension being flexibly connected along its lower generally horizontal edge to the wall of the body at said one end, and there being a folded excess of a flexible portion of said body wall connected to the upper edge portion of the foot extension, whereby the foot extension tends to open downward by gravity, means for closing the foot extension and for releasably securing it closed, comprising a flexible beaded tension element attached at one of its ends to one of said portions of the body, a notched element attached to the other of said portions of the body, said tension element being engageable in said notched element when said foot extension is closed, with two adjacent beads on opposite sides of the element and with the foot extension gravity-urged to open position and applying a normal tension to the tension element, means for collapsing movement of said top frame portion of the body toward said foot extension portion thereof whereby the tension on said tension element is substantially decreased below said normal tension, said tension element being adapted to release it-

self from said grooved element in response to a said collapsing movement of the top frame portion and the said decreased tension, thereby to free the foot extension for a gravity-opening thereof.

4. In a collapsible baby carriage having a body including a top frame and a bottom of which the top frame is depressible toward said bottom for a collapsing of the carriage, a foot extension for the body at one end thereof including a relatively stiff portion which is swingable between a closed position in which it stands generally vertical and an open position in which it constitutes a generally horizontal extension of said bottom of the body, means for closing the foot extension and for releasably securing it closed, comprising a flexible beaded tension element attached at one of its ends to said swingable relatively stiff portion of the foot extension, a keeper element attached to said top frame of the body and including a portion having a notch therein in which a portion of said tension element extending between adjacent beads may be engaged with said adjacent beads on opposite sides of said notched portion of the keeper, said tension element being automatically releasable from its said engagement in the keeper in response to any substantial depression of said top frame relative to said bottom of the body.

5. In a baby carriage having a body including a top frame and an openable and closable foot extension at one end of the body, means hingedly connecting the foot extension along its lower generally horizontal edge to the wall at said one end of the body, whereby the foot rest can open



downward about said hinge connection, means for controlling said foot extension comprising a flexible, beaded tensile element attached at one of its ends to said foot extension; a notched keeper element attached to said top frame and over which said tension element extends, there being an opening through the adjacent end wall of the carriage body and said tension element extending through said opening with a substantial free end portion hanging loosely within the carriage body, said hanging portion within the body being manually actuatable to draw the foot extension closed and to engage a portion of said tension element in said groove of the keeper to maintain the foot extension closed with a normal tension on the tension element and with the foot extension inclined and tending by gravity to open, and said engaged portion of the tension element being releasable from the keeper in response to a substantial decrease of the tension thereon below the said normal tension thereby to free the foot extension for an opening movement thereof.

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