April 7, 1942. A. G. FELDMAN 2,278,582

BABY CARRIAGE

Original Filed March 27, 1939 3 Sheets-Sheet 1

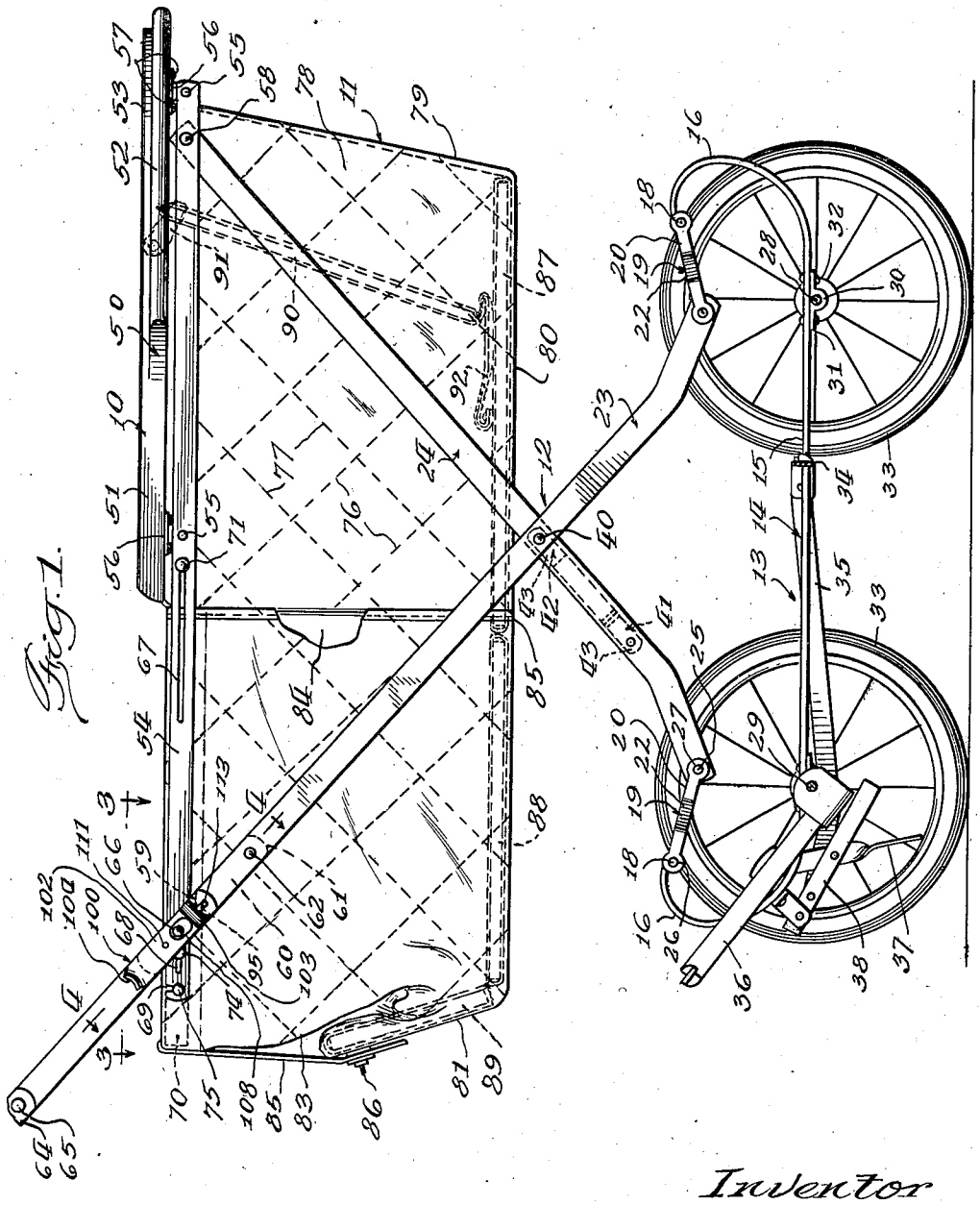


Fig. 1.

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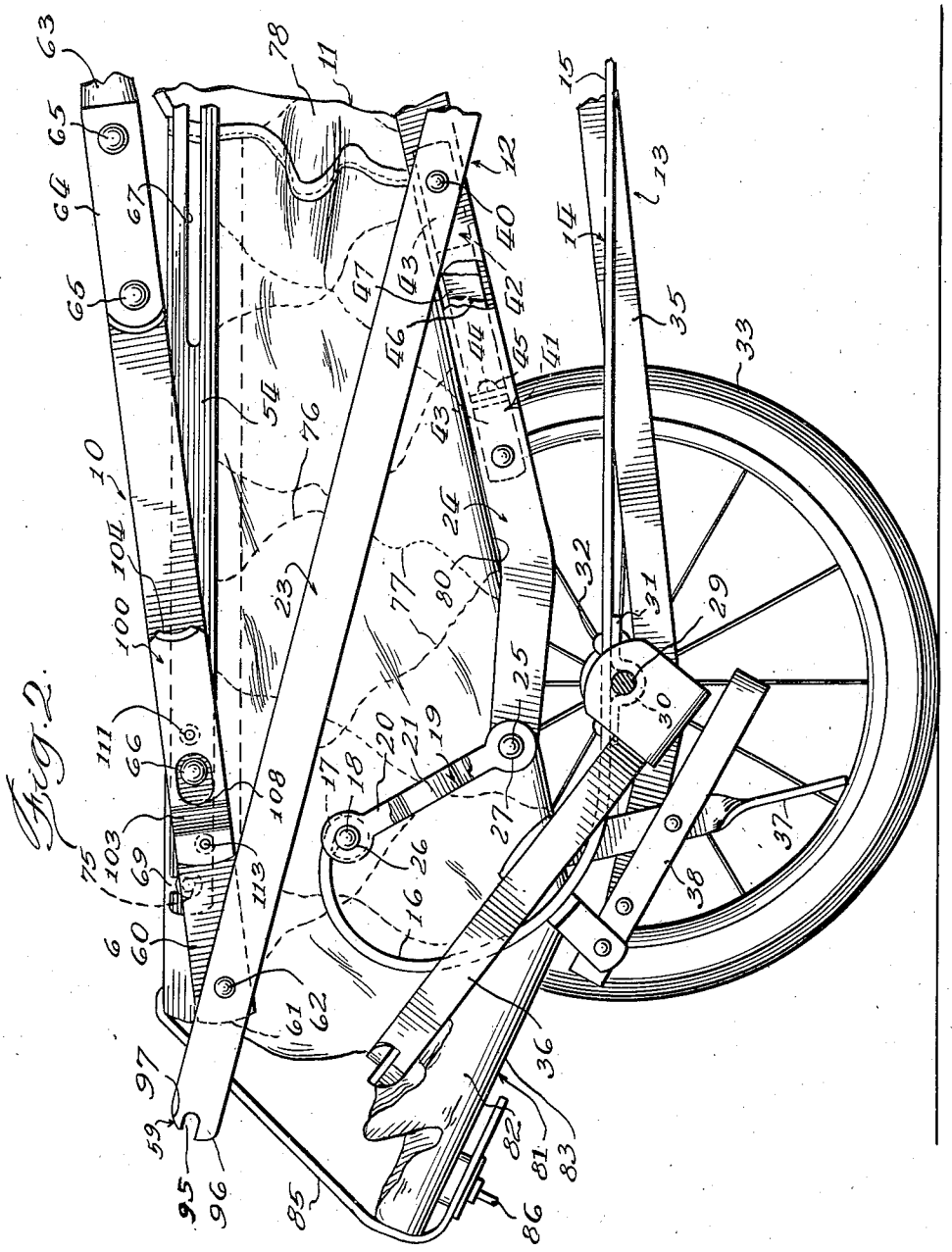


Fig. 2.

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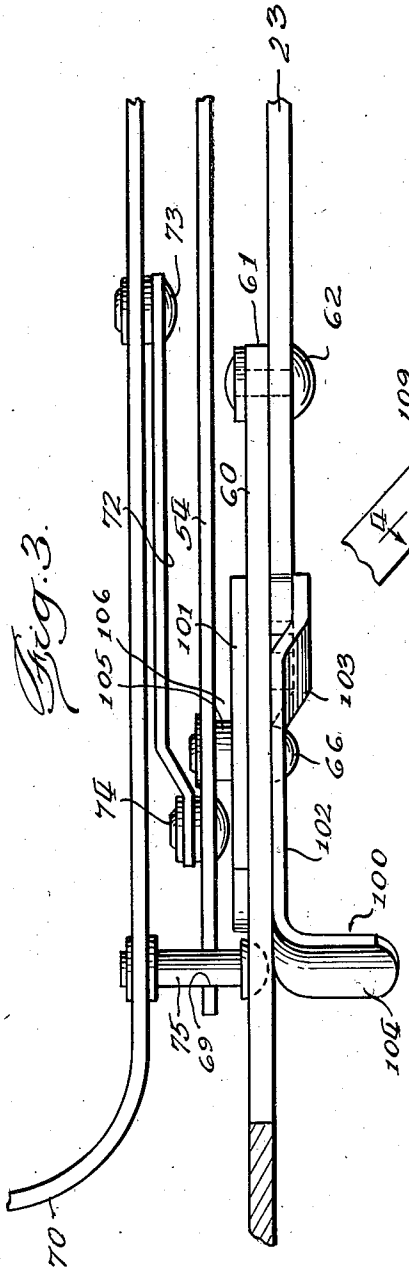


Fig. 3.

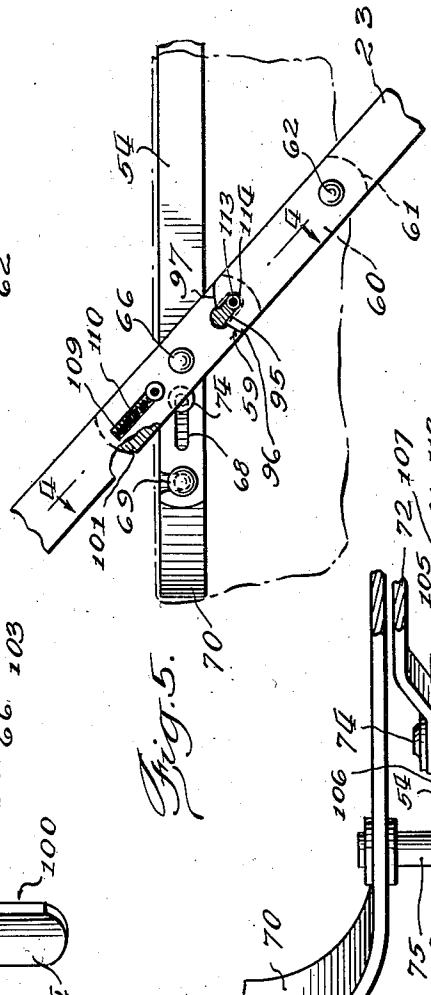


Fig. 5.

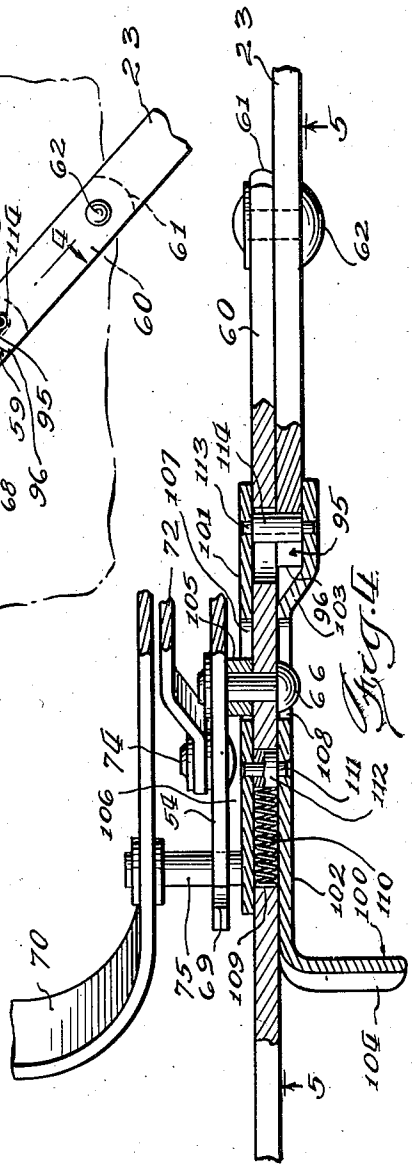


Fig. 4.

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UNITED STATES PATENT OFFICE

2,278,582

BABY CARRIAGE

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Original application March 27, 1939, Serial No. 264,282. Divided and this application May 4, 1940, Serial No. 333,397

5 Claims. (Cl. 280—41)

The present invention relates to baby carriages and is particularly concerned with baby carriages of the collapsible type having an extensible framework and a collapsible basket.

The present application is a division of my prior application Serial No. 264,282 filed March 27, 1939, for Collapsible baby carriages.

One of the objects of the invention is the provision of an improved latching mechanism for baby carriages of the collapsible type by means of which the extensible framework is positively held in its extended position so that there is absolutely no possibility of a carriage folding while there is an occupant in the basket.

Another object of the invention is the provision of improved latching mechanism which is adapted to be self-latching when the framework is moved to the open position and which must be positively actuated by both hands when the framework is to be collapsed.

Another object of the invention is the provision of an improved baby carriage of the collapsible type which is sturdy, serviceable, capable of being manufactured at a low cost, and adapted to provide an easy-riding vehicle for infants.

Another object of the invention is the provision of an improved collapsible baby carriage mechanism provided with a set of springs carried by the chassis in such manner that the springs are tensioned when the collapsible mechanism is opened and the springs tend to collapse the mechanism against the action of a latching device.

Another object of the invention is the provision of an improved form of locking device for collapsible carriages of the type described, which holds the carriage firmly in open position, but which is simple and easy to operate for the purpose of folding the carriage.

Other objects and advantages of the invention will be apparent from the following description and the accompanying drawings, in which similar characters of reference indicate similar parts throughout the several views.

Referring to the three sheets of drawings:

Figure 1 is a side elevational view of a collapsible baby carriage constructed according to the present invention and with the two wheels in the foreground removed to expose the mechanism;

Figure 2 is a similar view with the parts of the collapsible mechanism in the folded position;

Figure 3 is a full size plan view of the latching mechanism;

Figure 4 is a fragmentary sectional view taken on the plane of the line 4—4 of Figure 5 looking in the direction of the arrows; and

Figure 5 is a fragmentary side elevational view showing the latching mechanism taken on the plane of the line 5—5 of Figure 4 looking in the direction of the arrows.

Referring to Figs. 1 and 2, 10 indicates in its entirety the upper framework, 11 the basket supported thereby, 12 the collapsible scissors mechanism, and 13 the chassis.

The chassis preferably includes a pair of strap steel springs 14, which are identical in shape and structure and located on opposite sides of the vehicle.

The springs 14 each have the central flat portion 15 and the upwardly and inwardly curved end portions 16 at each end. The end portions 16 are each formed with the curved bearings 17 adapted to receive the pivot pins or rivets 18 by means of which the springs are pivotally secured to the shackles 19.

Each of the shackles 19 comprises a pair of straps of steel 20, 21 of identical structure, but reversed in position. Each strap 20, 21 has an offset at 22 so that the ends opposite to the pintle 18 may be brought close enough together to engage on the opposite sides of one of the scissor bars 23, 24, to which they are pivotally secured by means of a rivet 25. Each shackle bar 20, 21 has at each end an aperture 26 and 27 serving as bearings for receiving the rivets 18 or 25.

The collapsible framework includes the scissor bars 23, 24 of similar structure on both sides of the carriage and secured by means of shackles to the springs in the same manner.

The chassis 13 also includes the steel rods 28, 29, serving as axles and secured to the springs 14 by means of the U-shaped brackets 30, which have attaching flanges 31 riveted to the lower side of the springs by rivets 32.

Each axle 28, 29 is longer than the width of the collapsible framework so that it projects at each side beyond the springs 14 by an amount sufficient to provide rotatable support for a rubber-tired metal wheel.

Thus four rubber tired metal wheels 33 are rotatably mounted upon the axles 28, 29 and secured thereon by means of cotter-pins passing through the axles.

The braking mechanism, comprising the bendable brake beam 34, connecting rod 35, foot pedal 36, release pedal 37, frame 38, and other elements may be similar to that described in my prior application, Serial No. 260,067, filed March 6, 1939,

on Collapsible baby carriages, and forms no part of features to be covered by this application.

In the view of Fig. 1, the two wheels in the foreground have been removed; that is, a section is taken on a plane just inside the two wheels on the right side of the vehicle.

The collapsible mechanism of the vehicle includes two similar scissor bars **23** and two similar scissor bars **24**, one of the bars **23** and **24** being pivotally secured together by means of a rivet **40** on each side of the carriage.

The scissor bars **24** are the inner ones in this arrangement and, as they are arranged on the inner side of the framework, they may be secured together by means of the cross frame members **41**, **42**, which consist of straps of steel provided with attaching flanges **43** at each end, which are riveted to the opposite scissor bars **24**.

The transverse frame member **41** may be straight, while the transverse frame member **42** has a flat central portion **44** that is riveted by means of rivets **45** to the frame member **41**. Extending from the flat central portion **44** of the transverse frame member **42** there is a diagonal bracing portion **46**, **47** at each end.

Thus the scissor bars **24** at each side of the vehicle are firmly secured together so that they are kept in definite spaced relation to each other and in substantially parallel relation to each other at all times. When one scissor bar **24** becomes collapsed, the other one must follow it, and thus both sides of the vehicle must collapse at the same time.

The framework **41**—**47** also increases the rigidity of the collapsible mechanism when it is extended as shown in Fig. 1.

As previously stated, the lower ends of the scissor bars **23**, **24** are secured by means of shackles **19** to the springs **14**. The length and proportion of these various parts is such that when the collapsible mechanism is extended, as shown in Fig. 1, the shackles **19** are substantially horizontal, but slightly downwardly depressed at their inner ends, due to the weight of the vehicle and the tension placed on the springs.

The arrangement is also preferably such that when the scissors are extended as shown in Fig. 1, there is a pull placed upon the curved portions **16** of the springs and the springs are slightly tensioned; that is, the springs tend to collapse the mechanism, and that is also the effect of the weight of the upper parts of the vehicle.

The basket **11** is carried by the framework **10** at the top of the vehicle, and the framework **10** is carried by the upper ends of the scissor bars **23**, **24**. For this purpose the upper framework may consist of a substantially U-shaped wooden member **50**, which forms a frame around the forward part of the vehicle.

The wooden frame **50** may have the ends of the legs on each side of substantially rectangular cross section, as at **51**, and the remainder of the frame may be provided with an outwardly extending bead **52**, forming an angular recess **53**, which is adapted to receive the carriage top.

The carriage top rests upon the bead **52** when it is folded. Fixedly secured to the lower side of the wooden frame member **50** on each leg is a steel strap frame member **54**, which may be secured to the wooden frame member **50** by means of rivets **55** and angle brackets **56**, which are secured to the wooden frame member by means of wood screws **57**.

The scissor bars **24** may then be pivotally secured to the upper frame members **54** by means of a rivet **58** near the forward end of each frame member **54**. The scissor bar members **23**, however, terminate short of the frame member **54** at the point **59** and each of them is pivotally secured to one of the legs **60** of the U-shaped handle, the end of each handle leg being indicated at **61**, and the rivet at **62**.

The handle **63** may consist of a bright tubular metal member of substantially U shape, having each of the ends of the opposite legs flattened at **64** and secured to the additional strap member **60** by means of the rivet **65**.

As previously stated, the strap member **60** is pivotally secured to the scissor bar **23** at the point **62**, and the handle leg **60** is pivotally secured on the frame member **54** by means of a rivet **66**. The frame member **54** extends to substantially the full length of the basket **11** at the top, when the basket is in the position of Fig. 1, on each side of the basket, and each upper frame member **54** is provided with an elongated slot **67** near its central portion, a shorter slot **68** adjacent its end, and an upwardly open slot **69** at its extreme rear end, for the purpose of supporting a movable foot well framework.

A movable foot-well framework consists of a U-shaped steel strap **70** (Fig. 4), having each of the ends of its legs secured to a rivet **71**, which is slidably mounted in a slot **67**. The legs of the U-shaped frame member **70** are arranged inside of the upper frame members **54**, and the rivets extend outwardly through the slots **67**, having their heads on the outside.

At a point substantially midway between the ends of the U-shaped frame member **70**, this frame member is also supported by means of a link **72** on each side, each link **72** being pivotally secured to a frame member **70** by a rivet **73**, which passes through the parts of the basket and the U-shaped frame member **70**.

The upper end of the link **72** is provided with a rivet **74**, which is slidably mounted in the slot **68**. The foot-well framework, comprising the U-shaped member **70**, is supported in a lower position by means of the rivets **71**, rivets **73**, links **72**, and rivets **74**, but it may also be supported in the position of Fig. 1, by means of a pair of laterally extending headed studs **75**.

One stud **75** is provided on each side of the U-shaped frame member **70**, the stud projecting laterally to such an extent that it is adapted to be received in the slot **69** of each frame member **54**, when the foot-well is lifted by means of its frame member **74** to the position of Fig. 1.

The length of the slot **67** is such that the rivet **71** can be slid forwardly in the slot **67** far enough so that the stud **75** will register with the slot **69**. The slot **68** permits the sliding movement of the foot well, even when it has its upper frame member **70** in horizontal position and the link is in horizontal position.

Such sliding movement is necessary for the purpose of moving the studs **75** around the end of the frame members **54** and forward until the studs **75** engage in the slots **69**.

The basket **11** preferably comprises some form of imitation leather or other manufactured fabric, which may be formed with two layers, the layers containing cotton for quilting, and the cotton being secured in place by suitable transversely extending seams **76**, **77**.

The padding of the quilting gives adequate protection against engagement of the fabric basket with the adjacent steel frame members, and the provision of two layers gives a finished ap-

pearance for the inside and outside of the basket alike.

The basket consists of the identical sides 78 at the front end of the vehicle, the front wall 79, and the bottom wall 80, which extends the full length of the vehicle. The side walls 78 and end walls 79 may be secured and supported from the upper framework by being nailed to the framework 50 with suitable upholstery nails.

The foot wall 81 of the basket comprises a part of the bottom 80 of the basket, substantially trapezoidal side walls 82 of the same shape, and an end wall 83. This foot well may be supported from the upper framework by having a U-shaped loop extending about the U-shaped metal frame member 70.

The foot well portion 82 of the basket and the side walls 78 at the front end of the basket are secured together by means of the extensions or gores 84 in such manner as to permit the upper end of the foot well to move outward from the main part of the basket, a bend taking place at 85 in the bottom of the basket.

Thus the basket is adapted to be used with its bottom 80 horizontal or with the foot well portion 82 extending downward in such manner that the vehicle may be used for a stroller.

In Fig. 1 the foot well is shown with a part of it folded upwardly and secured by means of an auxiliary flap and auto top fasteners. This auxiliary flap 85 forms a part of the rear end wall 83 of the basket, to which it is secured at the top, and the bottom 80 is provided with auto top fasteners 86, which extend through apertures in the flap 85 to fold up and secure a collapsible end portion of the foot well.

In order to provide stiff support for the bottom of the basket without bulging, the bottom is provided with a plurality of cloth covered plywood boards 87 at the forward part of the bottom 88, in the middle, and in the foot well at 89, at the extensible portion of the foot well.

These boards keep the bottom of the basket in a plane condition and give it a predetermined shape. They prevent the weight of the occupant from drawing the sides of the basket together.

The basket is also preferably provided with another back rest board, comprising a cloth covered plywood board 90, which may be secured by means of straps and snappers 91 at the top to the wooden frame member 50, and which is secured by means of a flexible cloth connection 92 at the bottom, to the bottom 80.

The length of the cloth connection 92 is such that the back rest 90 may be used in the position of Fig. 1, or it may be laid flatly on the bottom board 87.

The handle legs and the scissors bars 23 are preferably provided with an improved means for locking the collapsible frame-work in extended condition. A part of this locking mechanism is comprised in the slots 95 at the end of each scissor bar 23, as shown in Fig. 2.

The slots 95 are bordered on the lower side in Fig. 2 by an elongated lug 96, but the upper lug above the slot 95 is beveled at 97 for self-locking action.

The handle legs 60 each support a sliding latching member, indicated in its entirely by the numeral 100 (Fig. 4). Each such sliding latching member comprises a flat inner strap 101 and a flat outer strap 102, the latter being provided with an offset at 103 and a laterally turned thumb piece at 104.

The rivet 66 which pivotally secures each of the handle legs 60 to the upper frame member 54 on each side of the vehicle is an elongated rivet which is provided with a spacer member 105. The spacer member 105 on the rivet provides a space 106 between the frame member 54 and the handle leg 60 for the slider bar 101, which has an elongated slot 107 for passing the spacer 105.

The outside slider bar 102 also has an enlarged elongated slot 108 for passing the head of the rivet 66. The handle leg 60 at each side of the vehicle is provided with an elongated slot 109, within which is located a compression coil spring 110 between the two plates 101, 102.

The plates 101, 102 are secured together by a rivet 111, which also passes through the slot 109 and is provided with a spacer 112, to prevent the pinching of the leg 60 by the plates 101, 102. The rivet 111 and spacer 112 slide in the slot 109, but the entire slider 100 is urged toward the right in Fig. 4 by the spring 110 which engages one end of the slot 109 and forces the spacer 112 and rivet 111 toward the right.

The offset 103 brings the end of the plate 102 out to a position spaced from the end of the plate 101 to receive, between the plates 101, 102, the handle leg 60 and the upper end of the scissor bar 23.

At the right end of the two plates 101, 102 they are fixedly joined by a rivet 113, which is likewise provided with a spacer 114, serving to space the ends of the plates 101, 102 definitely at this point.

The spacer 114 acts as a latching member, slidably engaging in the slot 95 in the end of the scissor bar 23, when the handle and collapsible mechanism is extended as shown in Fig. 1, or as shown in Fig. 4.

The mechanism may be released by pulling upward on the thumb piece 104, that is, toward the left in Fig. 4. This moves the member 114 out of the slot 95 and permits the handle 63 to be moved clockwise from the position of Fig. 1 to that of Fig. 2, to effect a folding of the mechanism.

When the handle 63 is moved in the opposite direction, the member 114 slides over the beveled surface 97, and the beveled surface 97 automatically cams the slider 100 toward the left in Fig. 4 until the member 114 moves into the slot 95. Thus the latching mechanism is automatic and self-securing when the folding framework is opened from the position of Fig. 2 to that of Fig. 1.

The operation of the foregoing construction will be apparent from the described operation of its parts. In order to fold the carriage, it is only necessary to pull upward on the two thumb pieces 104 at each side of the handle legs to release the latching mechanism. The tension of the springs 14 and the weight of the vehicle above the springs tends to cause the scissors 23, 24 to fold and move the handle 63 in a clockwise direction to the position shown in Fig. 2. During this movement the lower ends of the scissor bars 23, 24 spread from each other to relieve the springs of any tension and to permit the ends of these scissor bars to fold downward into the curved portions of the springs by virtue of the action of the shackles 19.

The carriage framework may be extended by merely grasping on the handle and pulling upward to move it from the position of Fig. 2 to that of Fig. 1. This is best done by using both the hands and elbows, each hand grasping the

handle legs **60**, and each elbow resting on the upper part of the tubular handle in such manner that the handle is rotated in a clockwise direction by means of the hands and forearms, without depending upon the fixity or movement of the rest of the vehicle; that is, when the handle is so grasped and manipulated, it does not matter whether the vehicle tends to roll forward or downward during the operation, as the hands and elbows or forearms are so employed that they positively move the handle to the position desired. When this is done, the back rest **90** should, of course, be lying flat on the bottom **80**.

The spring and shackle support of the collapsible framework not only gives the upper part of the vehicle a floating action, which is present in the support of the vehicle by means of horizontal shackles, but the shackles permit a folding of the scissors down into the curved parts of the springs and permit the tensioning of the springs so that when the vehicle is in use the springs are pre-tensioned. This prevents all rattling of parts of the collapsible framework, and improves the riding qualities of the vehicle.

While I have illustrated a preferred embodiment of my invention, many modifications may be made without departing from the spirit of the invention, and I do not wish to be limited to the precise details of construction set forth, but desire to avail myself of all changes within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. In a baby carriage, the combination of a chassis with a collapsible framework, a basket-supporting frame carried by said framework and pivotally secured thereto at the upper ends of the framework, the framework including an elongated lever. a second lever pivotally secured to said elongated lever and to said frame and extending beyond said frame and secured to a handle, said elongated lever overlapping said second lever, a latching notch carried by the end of said overlapping portion of said elongated lever, a slider carried by said second lever and having a transverse shoulder for engaging in said notch, and spring means engaging said second lever and said slider for urging said shoulder into said notch, said slider comprising a pair of plates mounted on the opposite sides of said second lever and joined together with fixed members extending through said second lever, said second lever having slots for said fixed members.

2. In a baby carriage, the combination of a chassis with a collapsible framework, a basket-supporting frame carried by said framework and pivotally secured thereto at the upper ends of the framework, the framework including an elongated lever. a second lever pivotally secured to said elongated lever and to said frame and extending beyond said frame and secured to a handle, said elongated lever overlapping said second lever, a latching notch carried by the end of said overlapping portion of said elongated lever, a slider carried by said second lever and having a transverse shoulder for engaging in said notch, and spring means engaging said second lever and said slider for urging said shoulder into said notch, said slider comprising a pair of plates mounted on the opposite sides of said second lever and joined together with fixed members extending through said second lever, said second lever having slots for said fixed members, one of said slots being provided with a spring confined between said plates in said slot for engaging one of said fixed members to urge said slider into latching engagement in said notch.

3. In a latching mechanism for the collapsible framework of a baby carriage, the combination of a pair of metal levers pivotally secured together, the first of said levers overlapping the second of said levers, the first of said levers having its end formed with a latching notch, a slider carried by the other of said levers and comprising a pair of plates slidably mounted on the opposite sides of said second lever, said plates being joined by rivets passing through slots in said second lever, spacers carried by said rivets in said slots and engaging the inner surfaces of said plates to prevent the binding of said plates on said second lever, one of said spacers serving as a latching shoulder for engaging in said notch.

4. In a latching mechanism for the collapsible framework of a baby carriage, the combination of a pair of metal levers pivotally secured together, the first of said levers overlapping the second of said levers, the first of said levers having its end formed with a latching notch, a slider carried by the other of said levers and comprising a pair of plates slidably mounted on the opposite sides of said second lever, said plates being joined by rivets passing through slots in said second lever, spacers carried by said rivets in said slots and engaging the inner surfaces of said plates to prevent the binding of said plates on said second lever, one of said spacers serving as a latching shoulder for engaging in said notch, one of the slots in said second lever being elongated, and compression spring means located in said elongated slot and engaging one of said spacers for urging said slider into the latching position.

5. In a latching mechanism for the collapsible framework of a baby carriage, the combination of a pair of metal levers pivotally secured together, the first of said levers overlapping the second of said levers, the first of said levers having its end formed with a latching notch, a slider carried by the other of said levers and comprising a pair of plates slidably mounted on the opposite sides of said second lever, said plates being joined by rivets passing through slots in said second lever, spacers carried by said rivets in said slots and engaging the inner surfaces of said plates to prevent the binding of said plates on said second lever, one of said spacers serving as a latching shoulder for engaging in said notch, one of the slots in said second lever being elongated, and compression spring means located in said elongated slot and engaging one of said spacers for urging said slider into the latching position, the leading surface on the end of said first lever approaching said notch being beveled to cam the slider backward against said spring for automatic latching on predetermined movement of said levers, one of said plates being formed with a laterally projecting finger piece for use in withdrawing said slider, one of said plates being offset at one end to space the plates sufficiently to receive the two overlapping levers between them.

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