May 23, 1950 M. COHEN 2,508,905

INFANT'S FOLDING CHAIR

Filed Feb. 19, 1948 2 Sheets-Sheet 1

Fig. 3.

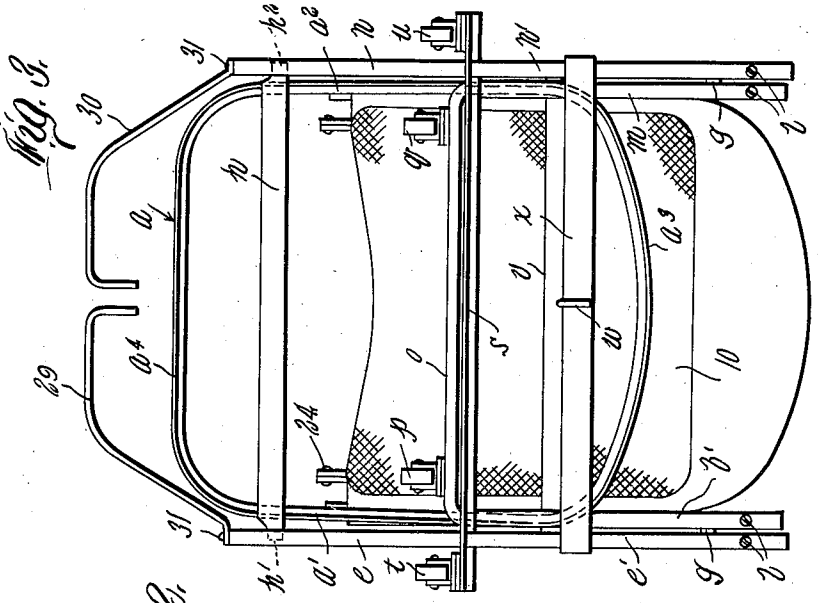


Fig. 2.

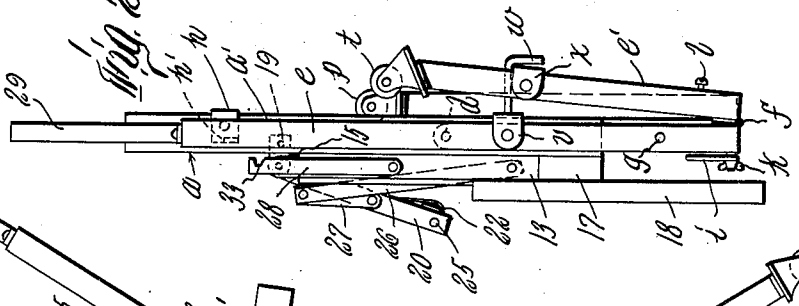


Fig. 1.

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May 23, 1950 M. COHEN 2,508,905

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Filed Feb. 19, 1948 2 Sheets-Sheet 2

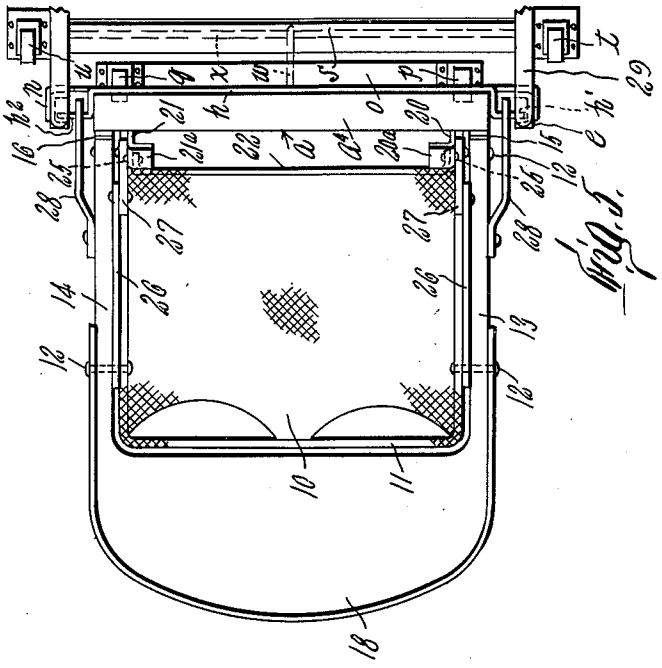


Fig. 5.

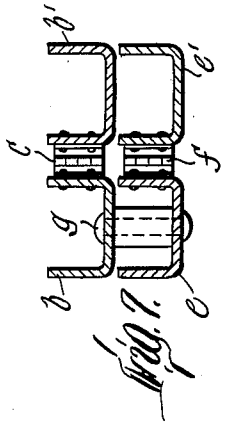


Fig. 7.

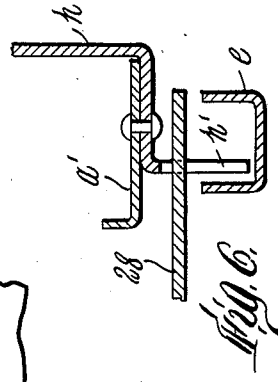


Fig. 6.

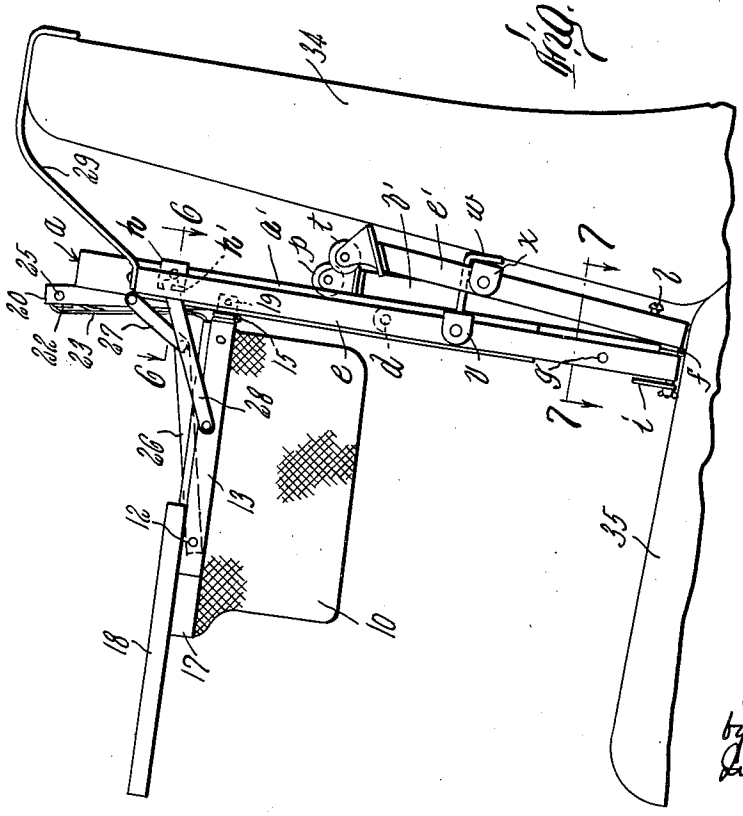


Fig. 4.

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Patented May 23, 1950

2,508,905

UNITED STATES PATENT OFFICE

2,508,905

INFANT'S FOLDING CHAIR

Myer Cohen, Beverly, Mass.

Application February 19, 1948, Serial No. 9,450

7 Claims. (Cl. 155—139)

1

The object of the present invention is to provide a folding chair for babies, which can be supported and moved over a floor or other smooth, level surface, or partially folded and applied to the seat of a motor vehicle for holding an infant safely thereon, or further folded into small compass for stowage. This object has been realized in a practical folding chair construction of which one embodiment is described in the following specification with reference to the accompanying drawings.

In the drawings:

Fig. 1 is a side view of a folding chair embodying this invention fully extended in condition for use when supported on a floor;

Fig. 2 is a side view of the chair folded into minimum compass for stowage;

Fig. 3 is a rear elevation of the folded chair as seen from the right of Fig. 2;

Fig. 4 is a side elevation of the chair partly collapsed and mounted for use in connection with one of the seats of a motor vehicle;

Fig. 5 is a plan view of the chair as shown in Fig. 4;

Figs. 6 and 7 are sectional views taken on lines 6—6 and 7—7, respectively, of Fig. 4 and showing details of construction on a larger scale.

Like reference characters designate the same parts wherever they occur in all the figures.

The fundamental part of the chair structure comprises a four sided open frame *a* and legs pivotally connected to the said frame and to each other. The frame, as best shown in Fig. 3, has side members *a'* and a^2, a front member a^3 and a rear member a^4. In the present illustration it is made of a single metal bar of angle bar section, bent to the prescribed outline and dimensions with meeting ends which are joined together by welding or in any other suitable way. There are four legs, two at each side, each composed of an upper section and a hinged lower section. One leg *b*, having a lower section *b'* connected to it by a hinge *c*, is pivoted to the side member *a'* of frame *a* by a pivot *d*. A second leg *e* at the same side of the chair, having an extension *e'* coupled by a hinge *f* crosses the leg *b* and is connected to it by a pivot pin *g*. Both legs are of channel bar stock arranged with their channels facing the frame *a*. The latter frame has a pivotal and sliding engagement with the leg *e* by means of a bar *h* which extends across between the side members *a'* and a^2 of the frame near the rear ends thereof and is formed with a tongue *h'* at its extremity which enters the channel of the leg *e* and is adapted to slide therein

2

when the framework is folded and opened out. It may be noted that the leg *e* crosses leg *b* at the outer side of the latter.

Disconnectible braces or locks are provided to hold the leg extensions in alinement with the respective upper leg sections when in the extended condition shown in Fig. 1. That associated with the leg *b* is a short flat bar *i* connected at one end to the leg section *b* by a pivot *j* on which a clamping wing nut *k* is mounted, and having a hook at its other end disposed to embrace the shank of a stud *l* mounted on the extension leg section *b'*, and being displaceable from engagement with the stud. An identical brace or lock is similarly associated with each of the other legs. This is one of several various means that can be used for the same purpose and is to be considered here as generically typical of all such operative means.

Corresponding legs *m* and *n*, having similar hinged extensions, are mounted and connected in symmetrical relation with the opposite side member a^2 of the frame *a*. Cross bar *h* has an end extension h^2 which projects into the channel of the leg *n* and is adapted to slide therein.

It may be noted that the leg extension *b'* and the hinged extension *m* of the corresponding leg at the other side are made of a single channel bar bent to form the parallel leg portions *b'* and *m*, and a cross bar *o*. Casters *p* and *q* are secured to the side of the cross bar *o* which comes underneath when the legs are extended. The lower ends of the leg extensions *e* and *n'* are secured to a cross bar *s*, the ends of which extend beyond these legs and carry casters *t* and *u*.

Another cross bar *v* extends across between the legs *e* and *n* and is secured thereto at a height above the pivot axis *g* suitable for supporting the frame *a*, when extended, in a nearly horizontal position, but with a slight rearward and downward slant. This frame projects rearwardly between the legs *e* and *m* when so extended, and its cross bar *h* rests on the cross bar *v*. A hook *w* extends rearwardly from the cross bar *v* and is swiveled thereto so that it can admit, and overlap a cross bar *x* secured to the leg extensions *e'* and *n'* at the forward side thereof and at a distance below the hinge axis *f* equal to the height of hook *w* above that axis. The hook is thus enabled to secure the leg extensions when folded up against the upper leg sections, as shown in Fig. 2 and also in Fig. 4.

The seat portion of the chair is a bag-like formation 10 made of textile fabric, having a rectangular bottom, four sides, and a stiffening

frame 11, (Fig. 5), at the upper edge of the bag formation to which the fabric forming the sides of the bag is secured. Spaces for the infant's legs are provided in the forward side wall of the bag. The marginal stiffening frame 11 is secured by rivets 12 to arms 13 and 14 (Fig. 5), which are connected at their rear ends by hinges 15 and 16 to the side members of the frame *a*. These last named arms are connected at their forward ends by a cross piece 17. A tray 18 for supporting food or playthings is mounted on the arms 13, 14 and cross piece 17.

The structure constituted by said arms and cross piece is arranged to rest on the upper side of the frame *a* when the latter is in the approximately horizontal, or extended, position shown in Fig. 1; the hinges 15 and 16 being disposed appropriately for this purpose and also to permit the forward part of the seat support to swing away from the forward part of the under frame. One leaf of each of the hinges is provided with a lug 19 which extends beside the inner surface of a side member of the frame *a*, as shown by dotted lines in Figs. 1 and 4, and is riveted to such side member.

A back is hinged to the seat frame. Such back is constituted by two side rails 20 and 21, a cross rail 22, and a breadth of fabric 23 looped around the cross rail 22 and extending downward to connection with the fabric which forms the rear wall of the seat bag 10. The side rails are flat bars pivoted at their lower ends to rear extensions of the margin stiffener frame 11, and bent over toward one another at their upper ends, as indicated at 20*a* and 21*a* in Fig. 5. The pivot for the side rail 20 is indicated at 24 in Fig. 1. The cross rail 22 is a similar flat bar, the ends of which are bent over to lie against the inner faces of the rails 20 and 21 beneath the turned over ends thereof, and secured thereto by rivets 25. Jointed links 26 and 27 are connected between the side rails of the back and the side arms 13 and 14 of the seat support to hold the back in a nearly upright position when the chair is extended out, as in Fig. 1, and to permit the back being brought nearly parallel to the seat supporting frame, as shown by Fig. 2.

Tie links 28 are pivoted to the side arms 13 and 15 of the seat-supporting frame, and tie hooks 29 and 30 are connected by swivel pivots 31 and 32 to the upper extremities of the legs *e* and *n*, which extend upwardly well above the position of the open frame *a* when the chair is extended as shown in Fig. 1. The purpose of these tie links and hook links will be presently described.

When the chair is fully unfolded and extended, the casters at the foot extremities of its legs rest on the floor, the annular supporting frame *a* is substantially horizontal, being supported at its forward part by the pivotal connection with the leg *b* and the corresponding leg at the other side, and the rear part of the frame is supported by the cross bar *v*. The seat supporting frame 13, 14, 17 then rests on the annular frame *a* and the back rest is held in an approximately upright, but slightly rearwardly tilting, position by the connected links 26 and 27.

In order to adapt the chair for use with the seat of an automobile, the legs are turned about their connecting pivots *g* until their upper sections are as nearly in the same plane as permitted by the cross bars *o* and *s* at their foot ends. As the legs are being brought into that relation, the tongue projections h' and h^2 of the annular frame *a* slide upward in the channels of the upper

leg sections *e* and *n*. The braces *i* of the hinged leg extensions are released, and these extensions are turned about their pivots *f* and *c* until they lie close against the upper leg sections and one another. Such folding of the extensions permits the upper leg sections and the base frame *a* to be brought into the same plane. The hinged extensions are then locked in the folded position by the hook *w*, which is brought over the cross bar *x* and turned down in rear thereof. The seat supporting frame 13, 14, 17 is then held in an outstanding position by the tie links 28 which have notches 33 in their under side near the rear extremity which are placed over the tongues h' and h^2 and are interlocked with the upper edges thereof, (Figs. 4, 5 and 6). The hook links 29 and 30 are swung about their swivel positions so as to extend to the rear.

The upper sections of legs *e* and *n* and the hooks 29 and 30 are designed with relation to the height of standard automobile seat backs such that the hooks extend over the top and some way down the rear side of such a seat back when the folded legs are placed to rest on the seat cushion with the folded extensions thereof between the upper leg sections and the seat back. In Fig. 4 the back of a conventional automobile seat is shown at 34 and the seat cushion at 35. Seats of all makes and nearly all styles of commercial automobiles have nearly the same dimensions as to the height to which the back rises above the seat cushion; and the rear seats of most cars have backs which are capable of being embraced by the hook links of my chair. Thus the chair, made as here shown and described, when partially folded in the manner represented by Figs. 4 and 5, can be placed and supported on the cushion of any such seat and coupled to the back by means of the hook links, being thereby stably supported and securely anchored against tipping forward or sidewise. Thereby a safe and secure seat is provided for an infant too young and helpless to be seated and left unsupported directly on the automobile seat.

To fold the chair further into minimum compass, the hook links are turned about their swivel pivots into the same plane with the legs, as shown by Fig. 3, the tie links 28 are unhooked from the tongues h', h^2, and the seat frame allowed to swing downward around the hinges 15 and 16, as shown in Figs. 2 and 3. The back rest is also permitted, by reason of the articulation between links 26 and 27, to swing downward as shown.

It will be appreciated from the foregoing description that I have provided a double purpose chair which can be quickly put in condition either for resting on a floor or connection with a vehicle seat, or folded into compact condition for stowage; and that conversion from any one of these conditions to either of the other two can be accomplished with the utmost facility and very quickly. When in the folded condition, either the links 29 and 30 or the annular frame *a* can be used as a handle for carrying the chair, and the turned up leg extensions are held securely by the hook *w* from dropping, while gravity normally holds the seat and back rest in the stable pendent position. When extended into either position for holding an infant, the chair is rigid and provides a safe and secure support for the infant.

What I claim is:

1. A folding chair comprising a base frame of open formation having substantially parallel opposite sides, a pair of legs disposed adjacent to each of said opposite sides, one of each pair of

legs being pivoted to the adjacent side and the other leg of each pair having a pivotal and sliding connection with the same side of the frame at a distance from the pivot, the legs of each pair being pivoted together at a distance from the first named pivot connection with the frame for swinging movement between a position in which the legs are substantially in the same plane and another position in which they are crossed at a wide angle, said frame being slidable along the legs with which it is in pivotal and sliding connection into substantially the same plane with said legs, a seat-supporting frame mounted on the base frame, being in hinged connection therewith on an axis located between the points of engagement of the base frame with the respective legs, for relative swinging displacement between a position parallel to and resting on the base frame and a position extending away from the base frame, tie means between the seat-supporting frame and the base frame for holding the seat-supporting frame in the last mentioned position, and a seat held by said seat-supporting frame.

2. A folding chair comprising a base frame of open formation having substantially parallel opposite sides, a pair of legs disposed adjacent to each of said opposite sides, one of each pair of legs being pivoted to the adjacent side and the other having a pivotal and sliding connection with the same side of the frame at a distance from the pivot, the legs of each pair being pivoted together at a distance from the first named pivot connection with the frame for swinging movement between a position in which the legs are substantially in the same plane and another position in which they are crossed at a wide angle, the base frame being movable, by virtue of its pivotal and sliding connection with the legs into substantially the same plane therewith when the legs are in collapsed position, and into a relation making large angles with both legs when the legs are spread apart, the legs with which said frame has sliding connection being provided with means for supporting the frame when in the spread apart position, a seat-supporting frame hinged to the base frame at a point near the location of said pivotal and sliding connection whereby it can swing away from and toward the base frame, and being constructed to bear on the base frame in supported relation thereto, tie links disposed for interconnection with the seat-supporting frame and the base frame to hold the seat-supporting frame at a prescribed angle to the base frame, and a seat held by the seat-supporting frame.

3. A folding seat according to claim 2, in which tie hooks are connected with the legs which have the sliding connection with the base frame and

are adapted to be engaged with the back of an automobile seat when the legs are brought into collapsed position and are placed on the body supporting cushion of such a seat.

4. A folding chair as set forth in claim 1, in which each of the legs is provided with an extension in hinged connection at a point below the pivot by which the legs are connected together, said extensions being foldable about their hinge connection into positions beside the legs to which respectively they are hinged.

5. A folding chair as set forth in claim 2, in which each of the legs is provided with an extension in hinged connection at a point below the pivot by which the legs are connected together, said extensions being foldable about their hinge connection into positions beside the legs to which respectively they are hinged.

6. A folding chair having a base frame, a pair of legs at each side of the frame pivoted together and having pivotal and sliding connection with the base frame for folding into substantially one plane and extension for use, a seat holding frame pivoted to the base frame to be supported thereby when the chair is extended for use and being rotatable about its hinge connection to a position projecting away from the base frame, detachable tie links disposed for holding the seat frame at substantially right angles to the base frame, a seat of bag formation secured to the seat-supporting frame and suspended therefrom, and hook links connected with one leg of each pair adapted to be placed over the back of a vehicle seat when the folded chair structure is located at the forward side of such seat back.

7. The folding chair combination set forth in claim 6, in which each leg is provided with a hinged lower section below the pivot which connects the legs of either pair together, and with releasable means for holding such extension in rigid alinement with the rest of the leg, said hinged sections being foldable into positions close beside the legs of which they respectively form a part.

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