Oct. 18, 1938. G. THORNTON-NORRIS 2,133,561

FOLDING CRIB AND THE LIKE

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Fig. 2

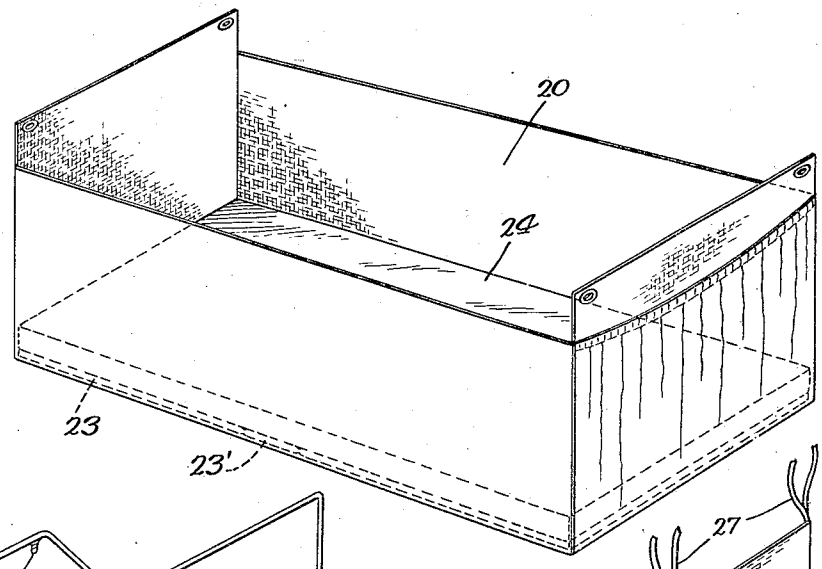
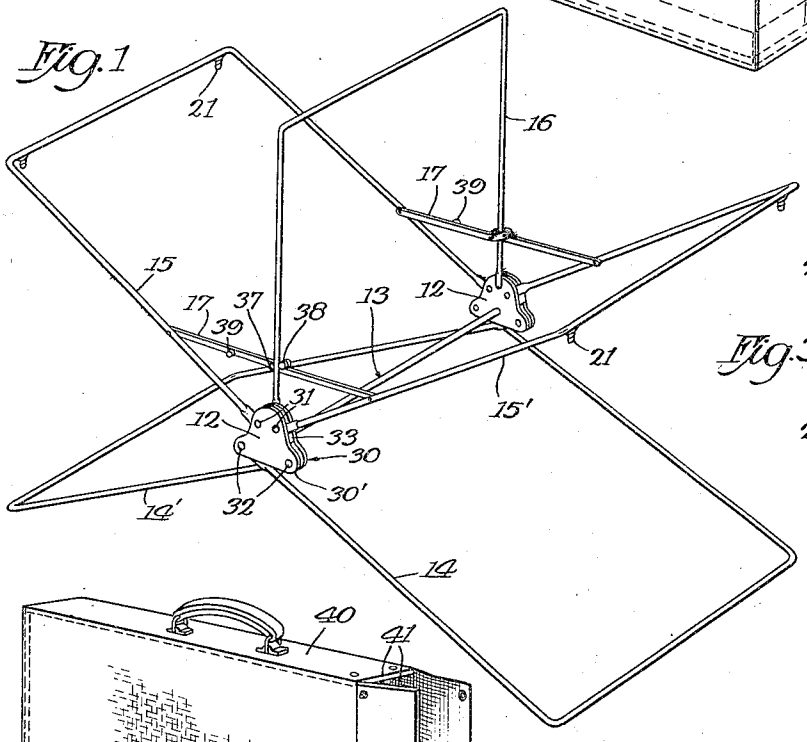


Fig. 1



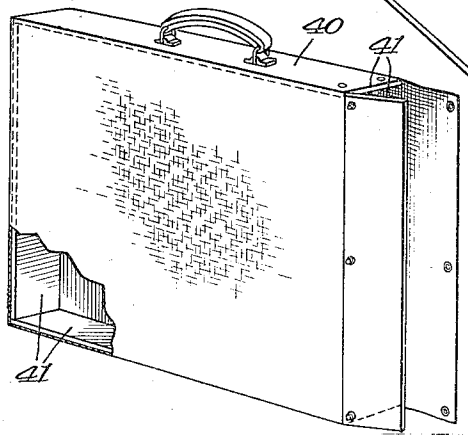
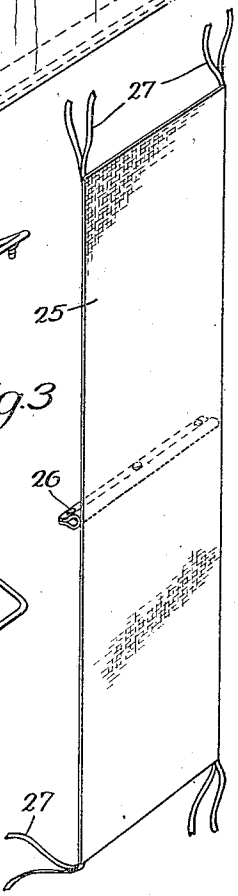


Fig. 4

Fig. 3



Inventor:
George Thornton-Norris
By George T. Gray, Jr. Atty.

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FOLDING CRIB AND THE LIKE

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Fig. 5

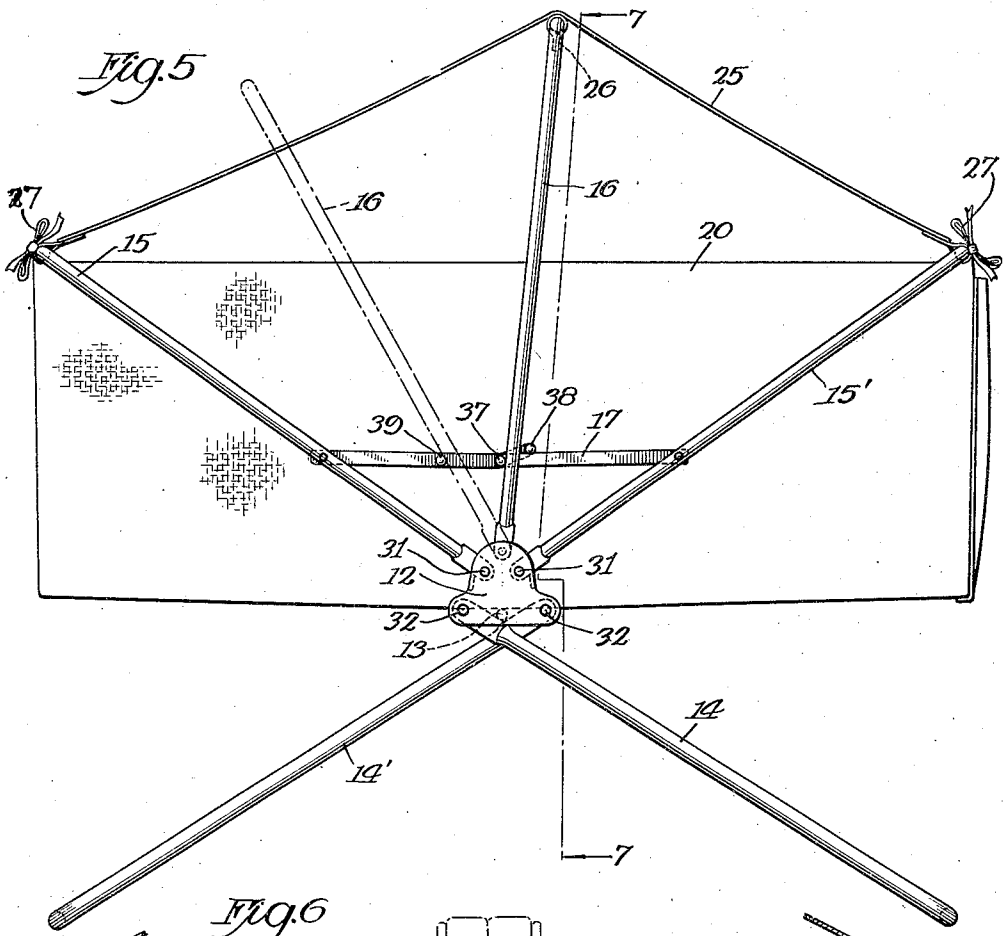
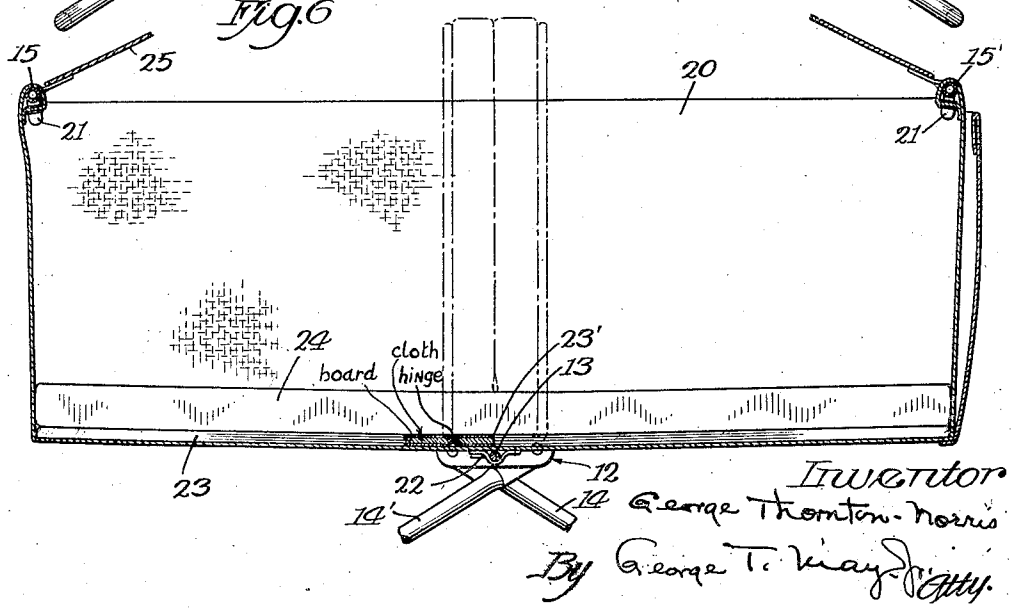


Fig. 6



Inventor
George Thornton-Norris
By George T. Kinsey Jr. Atty.

Oct. 18, 1938. G. THORNTON-NORRIS 2,133,561

FOLDING CRIB AND THE LIKE

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Fig. 7

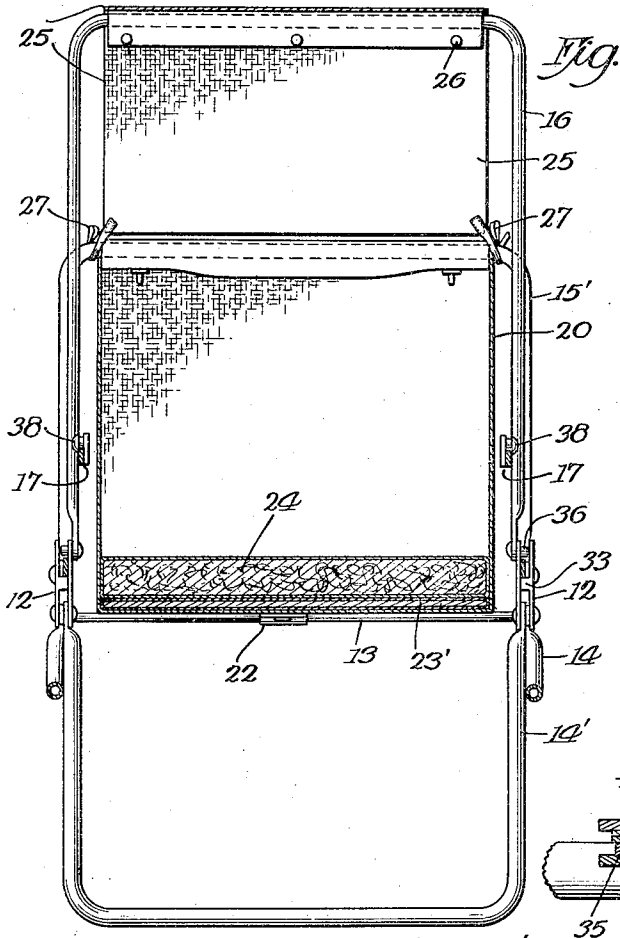


Fig. 8

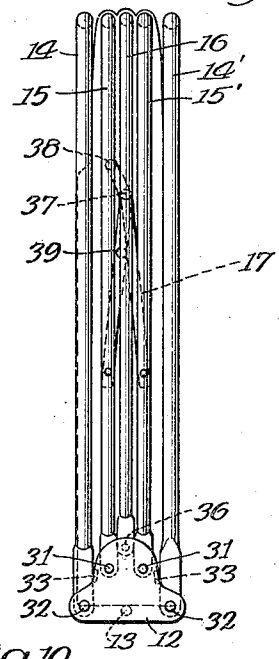


Fig. 10

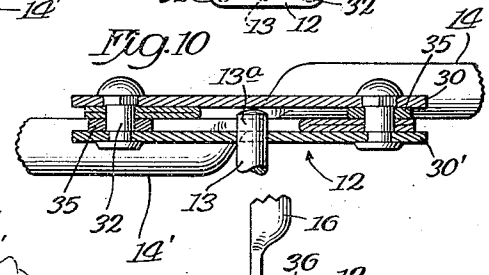


Fig. 9

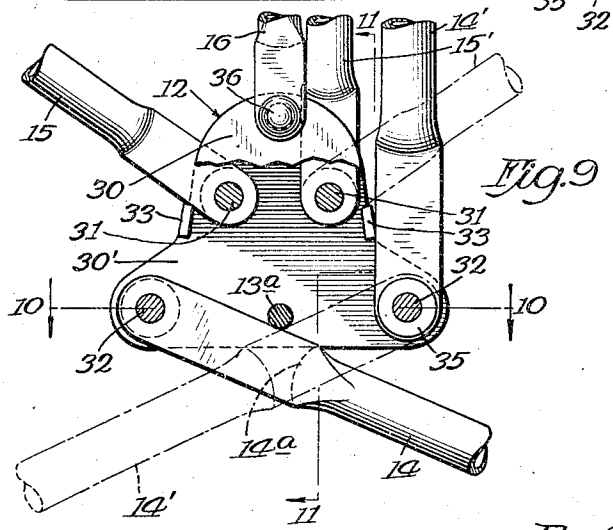
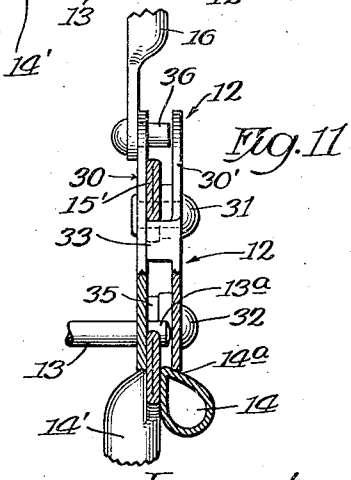


Fig. 11



Inventor:
George Thornton-Norris
By George T. May, Jr. Atty.

Patented Oct. 18, 1938

2,133,561

UNITED STATES PATENT OFFICE

2,133,561

FOLDING CRIB AND THE LIKE

George Thornton-Norris, London, England, assignor to The Scholl Mfg. Co., Inc., Chicago, Ill., a corporation of New York

Application February 8, 1937, Serial No. 124,545
In Great Britain February 20, 1936

7 Claims. (Cl. 5—98)

My invention relates to improvements in folding furniture and in frames therefor and, in some of its features, more particularly to foldable cribs for infants.

Among the general objects of the invention are, to provide a construction that is simple, rugged and suitable for manufacture with low production-cost; that, when embodied with a fabric body appropriate for an infant's crib, is suitable for compact folding into a substantially flat-sided oblong form convenient for storage or to be encased in a neat cover and carried as hand-luggage in travel; that, when erected, is sturdily safeguarded against accidental collapse; and that has all of its frame-parts permanently articulated and free from projections that, in any position of the structure, might endanger the user's person or clothing.

For the attainment of these and other objects, which will hereinafter become apparent, my invention consists in the features of construction and combinations of parts hereinafter set forth and claimed, reference being had to the accompanying drawings, wherein I have illustrated a single embodiment of my invention in the form of a folding crib, for purposes of full disclosure.

In the drawings,

Figure 1 is a perspective view of the crib frame;

Fig. 2 shows a suitable crib-body construction, detached;

Fig. 3 shows a crib-canopy member, detached;

Fig. 4 shows a slip-cover suitable neatly to receive the folded crib assembly, for convenient hand carriage in travel;

Fig. 5 is an enlarged side elevation of the crib, erected;

Fig. 6 is a fragmentary view showing the crib body and associated parts in section;

Fig. 7 is a transverse section through parts of the crib, on line 7—7 of Fig. 5;

Fig. 8 is a side elevation of the assembled crib in folded position, ready for storage or encasement;

Fig. 9 is an enlarged detail of a center-bracket of the frame and the members articulated therewith, with parts broken away;

Fig. 10 is a horizontal section on line 10—10 of Fig. 9; and

Fig. 11 is a vertical section on line 11—11 of Fig. 9.

In general, the metal frame herein shown has at each side a center-bracket 12, to which the appropriate ends of the frame-loops are articulated, and for purposes of crib construction a cross-rod 13 desirably extends between and is mounted in said center-brackets, for purposes of which more will be said later.

In the construction shown, five frame-loops are employed, one pair thereof, 14 and 14', being leg-loops; another pair, 15 and 15', being spreader-loops; and the remaining one, 16, serving as a canopy-support member.

Each frame-loop is desirably made of light tube-stock, with its cross-reach connected to its parallel side-reaches through short-radius bends, and with the inner ends of said side-reaches flattened (and laterally offset a bit where necessary) for convenient pivotal articulation with the center-brackets.

In the opened position of the frame, shown in Fig. 1, the leg-loops 14, 14', pivoted at well-separated points near the base of the center-brackets 12, cross each other below said brackets and are restrained by the brackets or their limiting cross rod, 13, against further opening movement; the two spreader-loops 15 and 15', pivoted on centers that are closer together and higher in the brackets, diverge at a suitable predetermined angle and are locked against relative folding movement by the toggle-link connections, 17, 17, between their respective side-reaches; and the canopy-loop 16, pivoted still higher in the brackets and in a vertical central plane through them, may be latched in upright position between protuberances 37, 38 carried by the toggle-latch structures 17, 17 and coacting with said canopy-loop in spring-latch fashion through the springiness of the toggle-links.

In the embodiment of my invention in a crib, it is desirable that the fabric body, the canopy, and accessory parts of the construction shall be readily detachable, and also that, when the crib is folded, as shown in Fig. 8, its frame parts shall constitute a substantially rectilinear, oblong border frame neatly enfolding the body, canopy, and accessories.

In the construction shown the fabric body 20 is a rectangular bag with its end walls higher than its side walls to wrap around the cross-reaches of the spreader loops and be detachably secured thereto by latch buttons 21, as shown in Fig. 6, and the bottom of the body is located at approximately the level of the frame's cross-rod 13 and centrally secured thereto by a buttoning-strap 22.

As marketed, the crib bottom is provided with a removable stiffening board 23, formed of cloth-covered fiber board or the like and comprising a narrow transverse center strip 23' to which the end members of the board are hinged,

through the flexible cover-cloth, for upward folding in substantially the planes of the folded leg-loops. This spacing apart of the bottom-board ends is adequate to accommodate the infolded side walls of the body and also a thin mattress pad **24**.

The canopy **25** is, as indicated in Figs. 3 and 5, a fabric strip the middle of which may be snap-fastened as at **26** around the cross-reach of the canopy loop **16**, and the ends of which are provided with tie strings **27** to be tied to the spreader loops when in use.

In the advantageous and inexpensive construction of the metal frame as herein shown, the coaction of center-bracket parts and parts of the appropriate loop members is such as to insure ease of erecting and ease of folding the crib, safe interlatching between cooperating frame parts when duly erected, and facility in stowing the crib in a suitable slip-cover.

Thus, in the particular construction shown, each center bracket **12** is formed of two bell-shaped sheet-metal stampings, **30** and **30'**, suitably spaced as by the two pairs of shouldered rivets, **31** and **32**, upon which, respectively, the spreader loops **15**, **15'** and the leg-loops **14**, **14'**, respectively, are mounted; one of said plates being provided at opposite sides with integral stop-lugs **33** bent across the space between the plates in such marginal position that (as indicated in Fig. 9) their upper edges may limit the opening movement of the spreader loops and their lower edges may limit the folding movement of the leg-loops. Such folding of the two leg-loops against their respective stops brings said loops into parallelism substantially at right angles to the base plane of the brackets **12**.

The cross-rod **13** of the frame extends through only the inner plate **30** of each bracket and across the interspace between the plates so that in its entirety it acts as a spacing-strut between the brackets, while its end portions **13a** (Fig. 9) serve as bracket-carried stops to limit the opening movement of either leg-loop **14** or **14'**; said leg-loops being arranged, furthermore, for impositive but effective interlatching when they are crossed below the brackets sufficiently to bring the flattened ends of both loops close to or into contact with said stops **13a**.

Specifically, leg-loop **14'**, which is sufficiently narrower than its companion loop **14** to pass through the latter in moving between folded and spread positions, has its flattened ends offset outwardly to confront the inwardly offset flats of the wider loop **14**, and the thickening of the flats where they begin merging into the round section of the tube stock, as at **14a** (Fig. 11), causes them to coact wedgingly against the side plates of the brackets for a strong frictional interlatching between the loops. In use, the erected crib may be pushed around, or picked up and carried, without danger of the leg-loops swinging toward pendent position.

To aid in properly positioning the flats of the leg-loops and the spreader loops on their respective pivots, and to prevent rattling, washers **35** are provided on the pivots.

As herein shown, the canopy loop **16** carries its pivoting rivets **36**, which extend outwardly through the inner plates **30** of the brackets **12**, **12**, and while the stiffness of the canopy loop is sufficient to make this pivotal connection a permanent one for normal use, the side-reaches of said loop can be forcibly sprung inward enough to withdraw the pivots and permit removal of the loop on occasion.

To maintain the canopy loop **16** erect, the toggles **17** are provided with rounded latching heads, **37** and **38**, respectively, formed on the pivot between the toggle links and on the locking-stop **38** of the longer link, so that after the spreader loops are toggle-locked in spread position, the canopy loop may be snapped into latched position between these rounded projections against the lateral springiness of the toggle links. Also, one or more additional stops **39**, against which the canopy loop may recline in partly erect position, may be provided on either of the links if desired.

Since the crib, when folded as shown in Fig. 8, has its parallel leg-loops standing at substantially right angles to the bracket-bases, and has the side-reaches and cross-reaches of all of the loops located quite nearly in respective flat edge planes and a flat end plane, and also has all of the fabric parts substantially enclosed within the frame's outline, the crib may very easily be inserted into a light case or slip-cover **40**, such as shown in Fig. 4, which may take inexpensive form as an end-opening fabric bag stiffened only marginally, as by fiber boards **41** reinforcing its top, bottom and ends; and in the folding of the crib the fabric body and its appurtenant fittings is properly centered by the connection **22** to frame-rod **13**, and side bulging of the body is prevented by the guiding effect of the folding toggle-links **17**.

It will further be noted that the metallic frame construction described is adapted for both manufacture and assembly of its parts at low production cost, and that the complete assembly is amply rugged, safe against collapse, and free from danger for nursery use.

I claim:

1. For a folding crib or the like, a supporting frame comprising two pairs of substantially U-shaped loop-members and two oppositely disposed center-brackets, the side-reaches of said loop-members being pivoted to said brackets and movable with respect thereto from substantially parallel, side-by-side folded relationship to spread relationship wherein one pair of said members extends downwardly in crossed position below said brackets such that their cross-reaches form a base and the members of the other pair extend upwardly in divergent position above said brackets such that their cross-reaches provide support for a fabric crib-body or the like.

2. For a folding crib or the like, a supporting frame comprising a pair of opposed center-brackets, a pair of substantially U-shaped spreader-loops pivoted to said brackets and movable between upright folded position and oppositely divergent open position, a pair of substantially U-shaped leg-loops pivoted to said center-brackets and movable between substantially parallel side-by-side upright position enfolding said spreader-loops and open, crossed position below the brackets, one of said leg-loops being narrower than the other to permit such crossing, and said leg-loops being adapted and arranged to frictionally interlatch in said crossed position.

3. For a folding crib or the like, a supporting frame comprising a pair of opposed center-brackets, a pair of spreader-loops pivoted to said brackets and movable between susbtantially upright folded position and oppositely divergent open position, toggle-lock connections between said spreader-loops to maintain them in opened

relation, a pair of substantially U-shaped leg-loops pivoted to said brackets and movable between parallel upright, folded position and downwardly extending, crossed, open position below the brackets, one said leg-loop being narrower than the other to pass through the latter in crossing, said leg-loops and at least one bracket coacting to frictionally interlatch said leg-loops in said crossed position, and means on said brackets for limiting said opening movement of said leg-loops.

4. A supporting frame for a folding crib comprising a pair of opposed vertical plate-like center-brackets widest at their bases, a plurality of substantially U-shaped loop-members pivoted on said brackets, said loop-members comprising a pair of leg-loops pivoted near the ends of said bracket-bases and movable from open, crossed position below said brackets to substantially parallel upright position above said brackets; a pair of spreader-loops pivoted nearer the vertical center of said brackets and movable from oppositely divergent position above said brackets to substantially upright position between the folded leg-loops and a canopy-loop pivoted above and between the pivots of said spreader-loops; said loops, when folded, standing side by side with their cross-reaches in substantially a common plane and said brackets having stops to limit the folding movement of said leg-loops.

5. A crib-frame comprising a pair of opposite center-brackets, a pair of leg-loops pivoted to said brackets and movable from crossed, open position below the brackets when erected to substantially parallel upright position above the brackets when folded; a pair of spreaded-loops pivoted to said center-brackets for movement from substantially upright folded position between the folded leg-loops to oppositely-divergent open position above the brackets; toggle-lock link-connections between said spreader-loops for locking them in open position; a canopy-loop pivoted to said brackets between said spreader-loops; said toggles of the spreader-loops having means thereon for latching said canopy-loop in erect position when the toggles are in locked position, and said center brackets having stops thereon for limiting the opening movements of, respectively, a leg-loop and a spreader-loop.

6. A folding crib comprising a frame having oppositely disposed center-brackets with their bases in a common plane, said brackets being provided with stops; substantially U-shaped leg-loops of different widths pivoted to said brackets and movable from crossed position below the brackets when open to upright parallel position above the brackets when folded against said bracket-stops; a pair of U-shaped spreader-loops pivoted to said center-brackets above and between the pivots of said leg-loops and movable from oppositely divergent open position to upright folded position between said leg-loops; toggle-links connecting said spreader-loops; a U-shaped canopy-loop pivoted to said brackets above and between the spreader-loops, all of said loops having their cross-reaches in substantially a common plane parallel to the center-bracket bases when folded; a folding canopy carried by the cross-reaches of the canopy-loop and spreader-loops, and a rectangular bag-like crib-body of fabric carried by the cross-reaches of said spreader-loops and foldable within the folded frame with its side walls restrained by the folded toggle-links.

7. For a folding crib or the like, a supporting frame comprising a pair of opposed center-brackets, a pair of substantially U-shaped spreader-loops pivoted to said brackets and movable between upright folded position and oppositely divergent open position, a pair of substantially U-shaped leg-loops pivoted to said center brackets and movable between substantially parallel side-by-side upright position enfolding said spreader-loops and open, crossed position below the brackets, and a strut-bar between said brackets and spacing them apart, said bar having portions adjacent its ends located in the path of movement of said leg-loops to limit their movement to said crossed, open position.

GEORGE THORNTON-NORRIS.