June 25, 1940. E. T. WRIGHT 2,205,452

FOLDING CRIB

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Fig. 1.

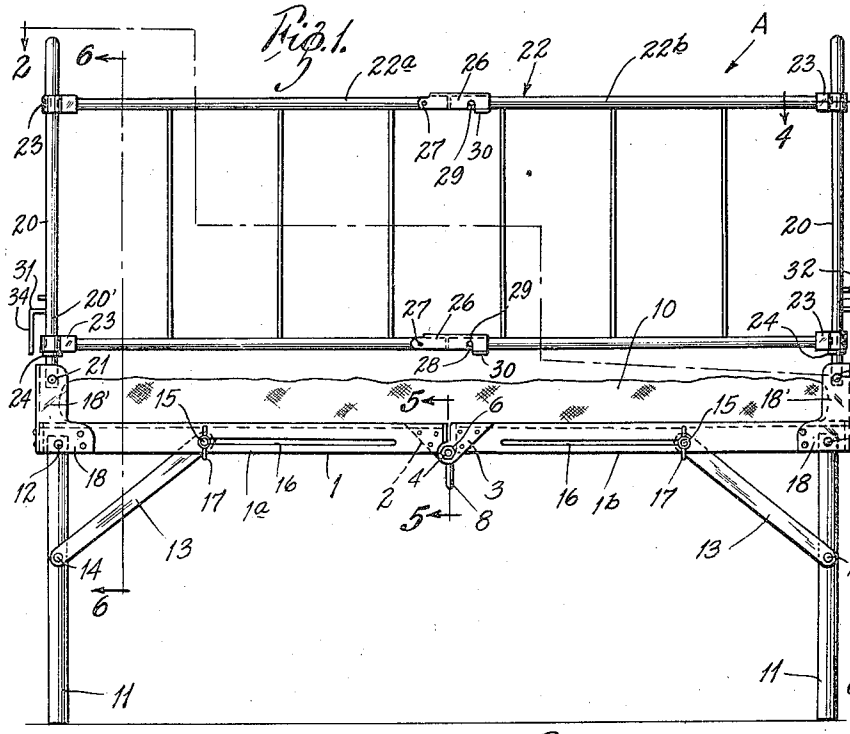

Fig. 4.

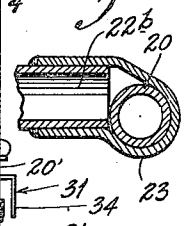

Fig. 5.

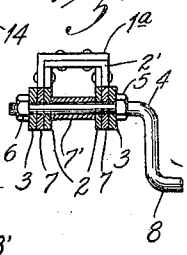

Fig. 2.

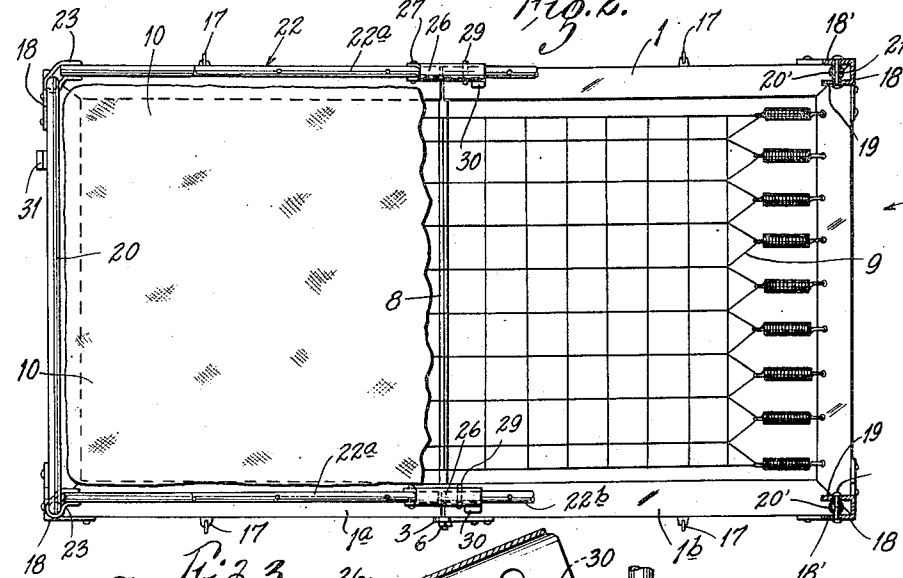

Fig. 3.

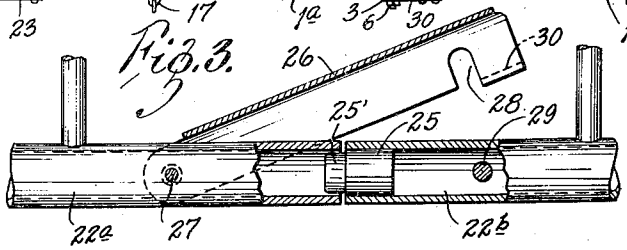

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Fig. 6.

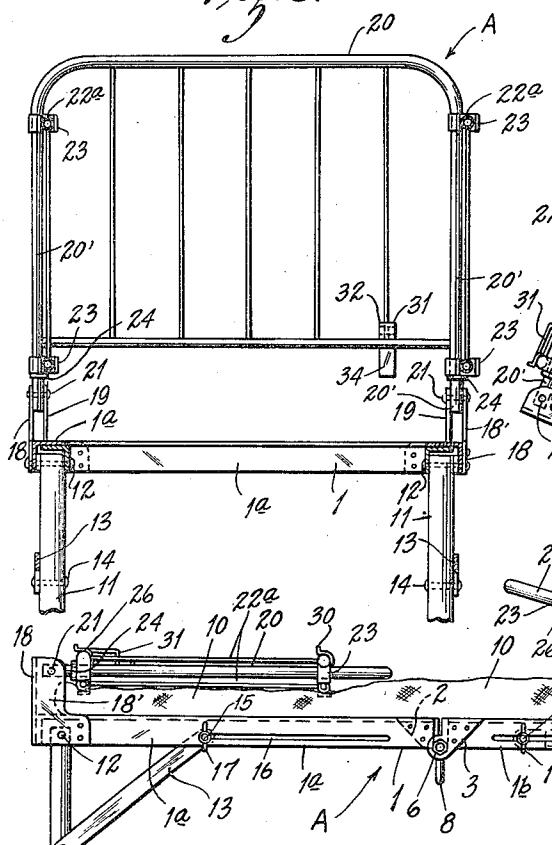


Fig. 8.

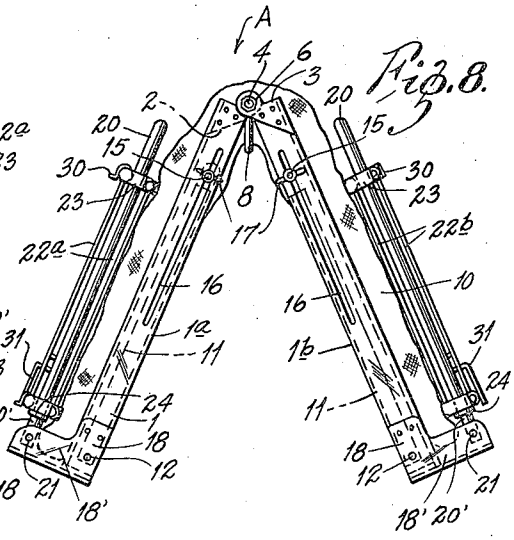


Fig. 7.

Fig. 9.

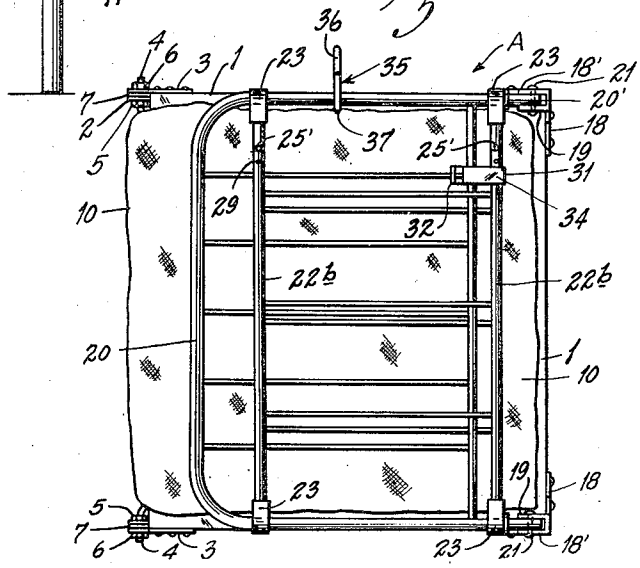


Fig. 10.

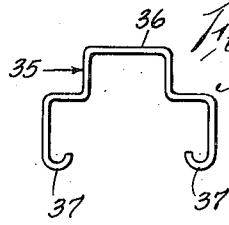
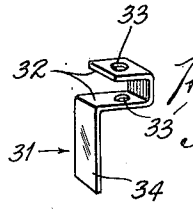


Fig. 11.



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UNITED STATES PATENT OFFICE

2,205,452

FOLDING CRIB

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Application October 20, 1937, Serial No. 170,097

3 Claims. (Cl. 5—99)

This invention relates generally to cribs and more specifically to cribs of the type adapted to be folded into compact form for convenience in handling, transportation, and storing, the predominant object of the invention being to provide a folding crib of such improved construction and arrangement that it may be completely folded in a simple and convenient manner so as to occupy the minimum amount of space, and which may be assembled in its upright, operative form with equal simplicity and convenience.

In the present age of extensive automobile travel by families the problem of providing suitable sleeping accommodations for very young children is a troublesome one. This results from the fact that the knock-down or folding cribs now obtainable on the market are not capable of being reduced to such proportions in their collapsed condition to permit of their being conveniently carried in automobiles which are occupied also by passengers and their baggage.

The main purpose of the present invention, therefore, is to provide a folding crib which is capable of being so completely folded that it occupies very little more space than a full size suitcase and therefore may be carried in the baggage compartment or the tonneau of an automobile with as much convenience as a large piece of baggage is so carried.

Another important feature of the invention is that the improved folding crib is capable of convenient use in small apartments where it may be folded and stored away in a very small space when not in use.

The improved crib disclosed herein is particularly well adapted for use in connection with automobile travel and in small apartments because it may be folded or collapsed, and assembled in its upright operative condition on performance of a very few, simple hand manipulations which require no tools nor mechanical ability on the part of the person performing the operations, and therefore even repeated operations of folding and unfolding the crib do not become laborious and troublesome.

Fig. 1 is a side elevation of the improved crib in its upright, operative condition.

Fig. 2 is a view partially in plan and partially in horizontal section taken on line 2—2 of Fig. 1.

Fig. 3 is an enlarged fragmentary sectional elevation showing the manner of connecting together parts of the sides of the crib.

Fig. 4 is an enlarged section on line 4—4 of Fig. 1.

Fig. 5 is an enlarged sectional elevation on line 5—5 of Fig. 1.

Fig. 6 is a vertical section taken on line 6—6 of Fig. 1, portions of the legs of the crib being broken away and the spring and mattresses of the crib being omitted.

Fig. 7 is a side elevation of the crib showing same in a partially folded condition.

Fig. 8 is a side elevation of the crib showing same as it appears when the folding operations of the crib have progressed beyond the stage illustrated in Fig. 7.

Fig. 9 is a side elevation showing the crib in a completely folded condition.

Fig. 10 illustrates in elevation the handle employed for carrying the folded crib.

Fig. 11 is a perspective of an engaging member, two of which form parts of the crib and serve to retain certain parts thereof in their folded condition.

In the drawings, wherein is shown for the purpose of illustration, merely, one embodiment of the invention, A designates the improved folding crib generally. The crib A includes a main frame 1 which is of rectangular form and is produced preferably from sections of angle iron suitably secured together. The main frame is composed of two frame sections which are designated in the drawings by the reference characters 1^a and 1^b and these frame sections are hingedly attatched together at their inner ends, which are located at the approximate longitudinal center of the frame 1, so that said frame sections may be folded back against each other, as illustrated in Fig. 8, to reduce the length of the frame by approximately one-half.

In order to hingedly connect the frame sections together the frame section 1^a is provided with pairs of hinge members 2 which are suitably secured to said frame section 1^a at opposite sides thereof and at points immediately adjacent to the inner ends of the opposed side extensions of said frame section. Also the frame section 1^b is provided with like hinge members 3 which are suitably secured to said frame section 1^b at points immediately adjacent to the inner ends of the opposed side extensions of said frame section. The hinge members 2 are secured to the frame section 1^a at inner faces of the vertical legs of the opposed side extensions of said frame section 1^a and at the inner faces of angle elements 2' secured to said side extensions of said frame section 1^a, while the hinge members 3 are secured to the frame section 1^b at outer faces of the vertical legs of the opposed side extensions of said

frame section 1b and at the outer faces of angle elements 3' secured to said side extensions of said frame section 1b. The pairs of hinges 2 and 3 at opposite sides of the main frame 1 are provided with overlapping extensions which are provided with alined apertures, and extended through these apertures are opposite end portions of a hinge rod 4 (Fig. 5) which extends transversely of the main frame 1. The opposite end portions of the hinge rod 4 have mounted thereon nuts 5 and 6, said nuts 5 and 6 contacting with faces of the hinge members 3. Also suitable spacers 7 and 7' are interposed between the overlapping portions of the pairs of hinge members and between the hinge members 2 as shown in Fig. 5. The hinge rod 4 is offset downwardly between the opposed end portions thereof as shown to the best advantage at 8 in Fig. 5 and said hinge rod serves the additional function of bracing the main frame 1 and of holding the center portions of the spring and mattress in their proper positions when the crib is folded as shown in Fig. 8. The main frame 1 is provided with a suitable spring 9 and said spring receives the mattress 10 of the crib in the usual manner.

Pivoted to the main frame 1 of the crib A at points adjacent to the four corners thereof are the legs 11 of the crib. The legs illustrated in the drawings are produced from lengths of tubular material and said legs are pivotally attached to the main frame by means of pivot pins 12 which pass through alined apertures formed in vertical leg portions of the main frame and in the legs of the crib. Each leg has associated with it a brace 13 which is pivoted at one of its ends, as indicated at 14, to the associated crib leg. At its opposite end each brace 13 has associated with it a bolt 15 which passes through an elongated slot 16 formed in the main frame 1, said bolt having a wing nut 17 mounted thereon through the instrumentality of which the end of the brace at which the bolt is located may be clamped to the main frame by forcing the wing nut into binding contact with said main frame. Because of this arrangement the legs and the braces may be folded within the main frame as shown by dotted lines in Fig. 8. When the legs are in their upright operative position as shown in Fig. 1 the wing nuts 17 may be tightened against the main frame to lock the braces 13 against movement with respect to the main frame whereby the legs 11 will be securely braced in their proper positions. Also when the legs have been folded within the main frame as shown by dotted lines in Fig. 8, during which folding movement the bolts pass to the opposite ends of the slots 16, the wing nuts may be tightened against the main frame to secure the legs in their folded positions.

Secured to the main frame 1 of the crib A at the four corners thereof are upstanding brackets 18 which are of angular formation when viewed in plan. Also each of these brackets is provided with an upright extension 19, as shown to the best advantage at the right hand end of Fig. 2, which extension is disposed in spaced parallelism with respect to an upright side portion 18' of the bracket. The opposite end members 20 of the crib are pivotally supported by the brackets 18, the lower end portions of opposed upright elements 20' of each end member being disposed between the portions 18' and 19 of brackets 18 located at the corresponding end of the crib, and pivot pins 21 are extended through alined apertures formed in said lower end portions of the end members and in said portions 18' and 19 of the brackets. Because of the pivotal arrangement just described the end members of the crib may be folded downwardly against the mattress 10 of the crib as shown to the best advantage in Fig. 8.

Supported for swinging movement by the end members 20 are the side members 22 of the crib. Each side member is composed of two sections 22a and 22b and each section comprises upper and lower bars connected by vertical bars. The sections of the side members are swingably attached to the end members by metallic straps 23 which embrace the upright elements of the end members in the manner illustrated in Fig. 4 and are welded or otherwise secured to the upper and lower bars of the sections of the side members. In order to support the sections of the side members at the proper elevation with respect to the end members 20 the straps 23 secured to the lower bars of said sections rest upon collars 24 fixedly mounted on the outer upright elements of said end members. In the assembled condition of the crib the sections of each side member 22 are connected together at their inner ends by means which include plugs 25 that are seated in the inner end portions of the hollow upper and lower bars of the side sections 22b. The plugs are provided with extensions 25' which project beyond the inner ends of the upper and lower bars of the side sections 22b and these extensions project into the hollow end portions of the upper and lower bars of the side sections 22a when the side sections of the sides 22 are properly assembled in alined relation. The extensions 25' of the plugs 25 may be caused to enter the hollow end portions of the upper and lower bars of the associated side sections by moving the side sections 22a and 22b of a side member inwardly or outwardly into a position where the upper and lower bars of said side sections are in alined relation with respect to each other.

In order to secure the side sections of the side members against unintended disengagement at their inner ends when the crib is in its assembled condition, the upper and lower bars of the side section 22a of each side member have associated therewith locking elements 26 which are of substantially inverted U-shaped formation when viewed in cross-section. Each locking element is pivoted by means of a pivot pin 27 to the bar of the side section 22a with which it is associated as shown to the best advantage in Fig. 3, and at a point adjacent to its opposite end each locking element has formed in its opposed side walls a pair of alined slots 28 which are open at the lower edges of said side walls. Also the upper and lower bars of the side sections 22b are provided with properly positioned pins 29 which extend transversely of said bars and extend slight distances beyond the opposite sides thereof.

When the side sections 22a and 22b of the side members are being moved into their alined relation to connect the inner ends of the bars of said side sections together through the instrumentality of the extensions 25' of the plugs 25, the locking elements 26 are raised at their free ends as shown in Fig. 3 and when said bars of said side sections have been properly alined and connected together the free ends of the locking elements are moved downwardly so that they embrace the inner end portions of the alined and connected-together bars and so that the opposite extended ends of the pins 29 are disposed in the slots 28 of the

locking elements. This effectively prevents the swinging movement from the hinged ends of the bars of the side sections which is required to break the joint between the inner ends of said bars, and also the locking engagement between the walls of the slots **28** and the pins **29** prevents longitudinal movement of the connected bars with respect to each other. In order to facilitate movement of the locking elements **26** into and out of the locking position each of said locking elements is provided with a laterally extended ear **30** which may be grasped by the person manipulating the locking elements.

When in the use of the improved crib it is desired to fold same, the locking elements **26** are raised at the free ends and the joints between the upper and lower bars of the side sections of the side members **22** are broken by swinging the connected inner ends of said side sections inwardly or outwardly. One side section swingingly connected to each end member **20** of the crib is swung inwardly against the inner side of the end member and the other side section swingingly connected to each end member is swung outwardly against the outer side of the end member. In order to permit the side sections connected to either of the end members being folded as described, the metallic straps **23** which hingedly attach the side sections to an associated end member are shaped differently as shown to the best advantage in Fig. 2. By so shaping the metallic straps **23** the side section *22a* at the top of Fig. 2 may be swung against the inner side of the associated end member **20**, while the side section *22a* at the bottom of Fig. 2 may be swung against the outer side of the associated end member. The end members with the associated side sections folded thereagainst as described are folded downwardly against the mattress **10** of the crib as shown in Fig. 7. The crib is then turned up on a side edge thereof after the wing nuts **17** are loosened and the legs **11** are folded within the main frame of the crib and said wing nuts are thereafter again tightened to hold the legs in their folded condition, the sections *1a* and *1b* of the main frame are folded against each other about the hinge rod **4** as shown in Fig. 8 to a position where said main frame sections contact with each other with the result that the crib is completely folded as shown in Fig. 9.

In order to prevent the side sections which are folded against the outer side of the end members **20** from swinging outwardly when the crib is folded an engaging member **31** is associated with each end member. These engaging members are formed as illustrated in Fig. 11 wherein a pair of horizontal portions are designated by the reference character **32**. The portions **32** are provided with alined apertures **33** and extended from the lowermost of the portions **32** is a downwardly projected extension **34**. Each engaging member is slidingly mounted on one of the vertical bars of the end member with which the engaging member is associated, said vertical bar being extended through the apertures **33** of the engaging member. After the side sections have been folded against the outer sides of the end members, the engaging members, which are in elevated positions during the folding operations, are moved downwardly so that the extensions **34** of said engaging members engage the lower bars of the folded side sections and thereby retain said folded side sections in their folded positions against the end members. Obviously the side sections engaged by the engaging members may be released by merely sliding the engaging members upwardly on the bars by which they are supported. It is obvious, of course, that no engaging members are required to retain in their folded positions the side sections which are folded against the inner sides of the end members as these latter side sections are interposed between the folded end members **20** and the mattress of the folded crib.

To provide means for conveniently carrying the folded crib a handle **35** is employed. This handle, which is illustrated in Fig. 10, includes a gripping portion **36** and a pair of opposed hook portions **37**, and in use the hook portions are caused to engage side elements of the end members **20** which are located at the top of the folded crib when same is disposed on its side as shown in Fig. 9. The gripping portion **36** of the handle may then be grasped and the folded crib carried in a very convenient manner.

From the description of the manner of folding the crib it is thought that the manner of converting the crib from its folded to its operative upright condition will be obvious.

I claim:

1. A folding crib comprising a main frame composed of a pair of main frame sections, means for hinging said main frame sections together at the approximate longitudinal center of the main frame, foldable legs associated with said main frame, end members pivotally connected to said main frame and adapted to be moved to folded positions with respect to said main frame, side members, said side members comprising each a pair of side sections swingingly supported by said end members, hinge members for swingingly attaching the side sections of said side members to said end members, each end member having a pair of side sections swingingly connected thereto, one of said side sections being located at one side of the end member and the other side section being located at the opposite side of said end member, said hinge members being or shaped as to permit of said side sections being moved into folded relation with respect to the associated end member where the end member is disposed between the folded side sections, and releasable means for connecting together the side sections of each side member when the crib is in its assembled condition.

2. A folding crib comprising a main frame composed of a pair of main frame sections, means for hinging said main frame sections together at the approximate longitudinal center of the main frame, foldable legs associated with said main frame, end members pivotally connected to said main frame and adapted to be moved to folded positions with respect to said main frame, side members, said side members comprising each a pair of side sections swingingly supported by said end members, hinge members for swingly attaching the side sections of said side members to said end members, each end member having a pair of side sections swingingly connected thereto, one of said side sections being located at one side of the end member and the other side section being located at the opposite side of said end member, said hinge members being so shaped as to permit of said side sections being moved into folded relation with respect to the associated end member where the end member is disposed between the folded side sections, means for retaining certain of the folded side sections in their folded positions with respect to said end members, and releasable means for connecting together the side sections

of each side member when the crib is in its assembled condition.

3. A folding crib comprising a main frame composed of a pair of main frame sections, means for hinging said main frame sections together at the approximate longitudinal center of the main frame, foldable legs associated with said main frame, end members pivotally connected to said main frame and adapted to be moved to folded positions with respect to said main frame, side members, said side members comprising each a pair of side sections swingingly supported by said end members, hinge members for swingingly attaching the side sections of said side members to said end members, each end member having a pair of side sections swingingly connected thereto, one of said side sections being located at one side of the end member and the other side section being located at the opposite side of said end member, said hinge members being so shaped as to permit of said side sections being moved into folded relation with respect to the associated end member where the end member is disposed between the folded side sections, means supported by said end members for retaining certain of the folded side sections in their folded positions with respect to said end members, and releasable means for connecting together the side sections of each side member when the crib is in its assembled condition.

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