

June 2, 1936.

S. W. SCHMITT ET AL

2,043,072

FOLDING CRIB

Filed April 28, 1932

2 Sheets-Sheet 1

Fig. 1.

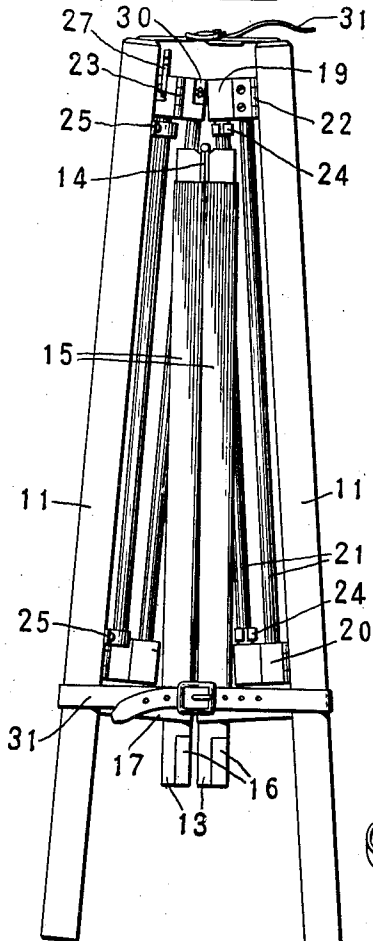


Fig. 2.

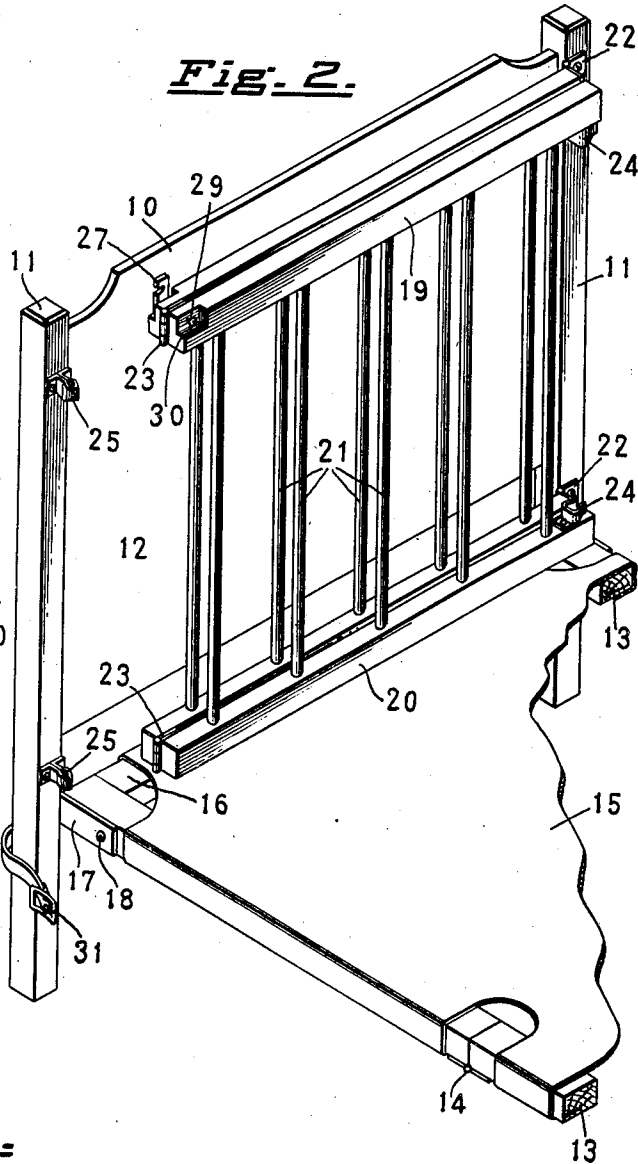
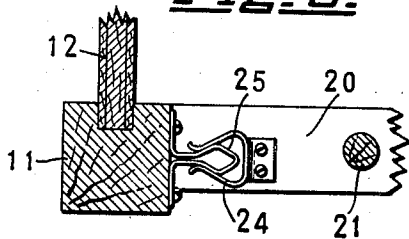


Fig. 3.



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Fig. 4.

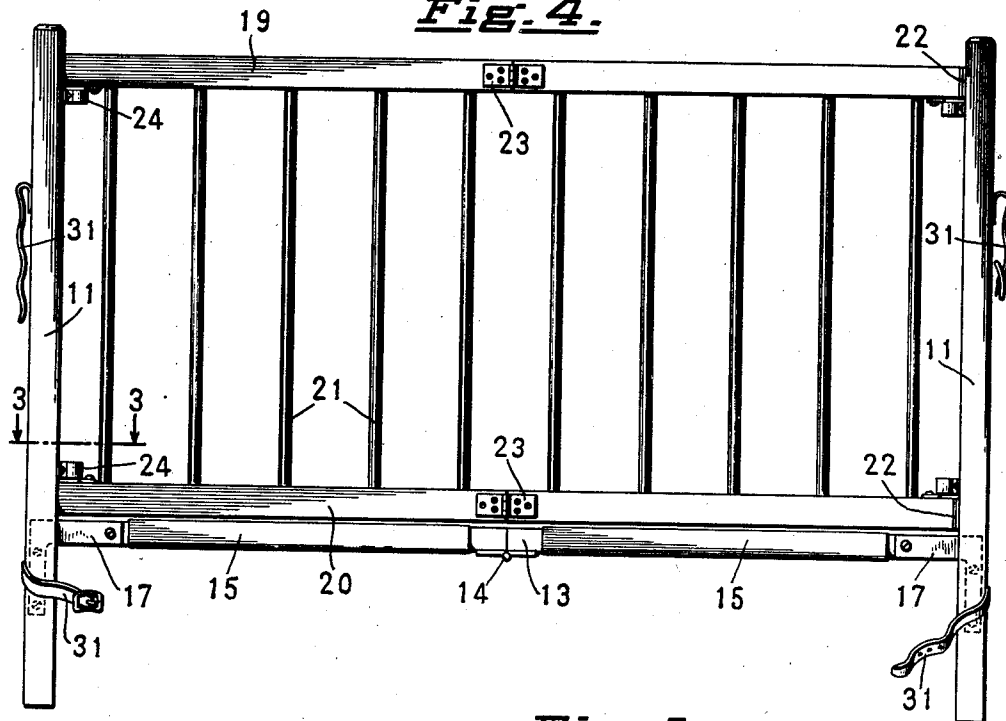


Fig. 5.

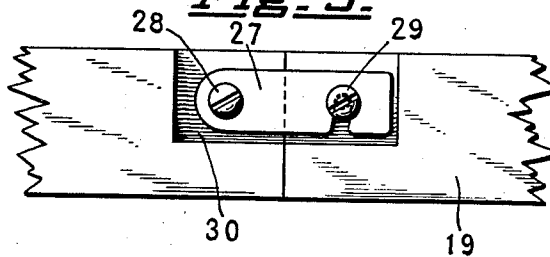


Fig. 7.

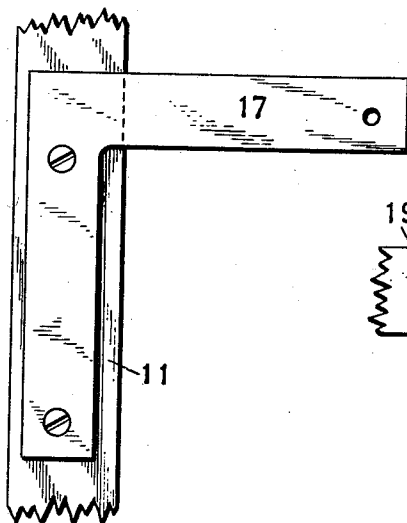
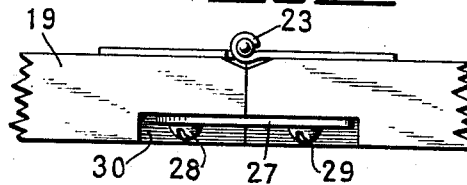


Fig. 6.



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2,043,072

FOLDING CRIB

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Application April 28, 1932; Serial No. 607,974

7 Claims. (Cl. 5-99)

This invention relates to folding cribs of the type adapted to be folded into a compact bundle, and has for its object to provide a device of this class which is more convenient to handle than the usual types, which is lighter in weight and capable of being opened and closed in short time with ease and without the use of any tools.

There have been a variety of prior art suggestions for folding beds and cribs. One such contemplated a non-yieldable bottom or mattress supporting frame, split centrally with each half pivotally connected so that it may fold up contiguous an end member. While this construction may be folded fairly compactly, an objection has been the non-yieldable and rigid mattress support. If this mattress support be made of canvas or wire spring so as to be yieldable this type construction becomes bulky and cumbersome. For example if the sides of each pivotal bed frame section are not rigidly connected they do not move together with the result that the folding operation becomes more difficult and inconvenient. If these members are rigidly connected by a transverse member then such transverse member must be bowed down to a considerable extent if it is not to be in the way of the yieldable material when sagging under the weight of an occupant. This type bed has contemplated side bars which are permanently and pivotally connected to the bed ends and adapted to be folded inward, or else adapted to be disconnected for folding.

Another type folding bed has contemplated the mattress supporting frame being centrally pivoted for folding upwardly. Side bars have been used which are adapted to be folded inwardly within the raised mattress supporting bed frame. An objection to this last construction is that when folded the bed is not as compact as is the former construction although the mattress supporting member may be yieldable without forsaking convenience since the bed frame members are not disconnected from one another or from the end members of the bed. Another objection is that there must be considerable clearance between the side bars and mattress supporting bed frame if these parts are not to be in the way of one another in folding up. In an effort to attain greater compactness when folded this last type construction has sometimes had the side bars adapted to be disconnected from the ends, but this has usually entailed inconvenience and the expenditure of substantial time in folding and unfolding by tightening or releasing nuts, bolts and the like. Such fasteners have been regarded as necessary because a child of a year and a half or two years or more frequently shakes its crib in a manner to loosen a less substantial type of connection.

The present invention partakes of the advan-

tages of both previously mentioned types of folding beds while at the same time eliminating the inherent disadvantages of each previous type construction. According to this invention the bed frame members are permanently connected to the end members and are not separable. The side bars are foldable and separable at one end where a quick detachable and yieldable connection is made between the end of a side bar and the bed end member. A latch is provided to maintain the side bars in extended position so that this quick detachable fastener may be maintained closed, and also abutments are provided to take opposite thrusts between the side bars and the end members.

Referring to the drawings Fig. 1 shows an end view of the device of this invention when folded. Fig. 2 shows a detail of one end portion with the bed frame open and the side bars folded at one end. Fig. 3 is a section on the line 3-3 of Fig. 4. Fig. 4 is a side view of the crib in open position. Fig. 5 is a detail of the latch used on the inner side of one of the side bars. Fig. 6 is a top plan view of the device of Fig. 5. Fig. 7 is a detail showing the L bracket attached to the inner side of the corner posts for supporting the bed frame.

In Figs. 1 and 2 the end members 10 are shown as comprising corner posts 11 secured at each end of a panel 12 preferably of multi ply wood. Connecting the members 10 at each end of the bed are the longitudinal frame members 13 provided with a central pivot 14 on each side whereby these frame members 13 may be swung upwardly as shown in Fig. 1. A yieldable material such as canvas 15 or spring wire mesh is connected between the longitudinal bed frame members 13 and preferably also connected to a transverse frame member 16 at each end of the members 13. By having the material 15 yieldable a more comfortable construction is provided without recourse to heavy mattresses and the like. These longitudinal frame members 13 are pivotally supported adjacent each end member 10 by the L brackets 17 and the screws 18. These brackets are preferably secured on an inner side of the corner posts 11 as shown in Fig. 7 and the horizontal portion of this bracket 17 is longer than double the thickness of the side bars 19 and 20 so that the pivot 18 is far enough out from the end member 10 to permit the side bars to be folded between the end member 10 and the longitudinal frame members 13 in folded position as shown in Fig. 1.

Upper and lower side bars 19 and 20 respectively are connected by ordinary vertical rungs 21 and these side bars are each pivotally connected at one end to a corner post 11 by the hinge 22 shown in Figs. 1, 2, and 4. Central hinges 23 are mounted as shown to permit the side bars to be folded inwardly. Preferably the hinges

22 for the side bars on one side are secured to the head end while these hinges 22 for the side bars on the other side of the bed are arranged at the foot or diagonally opposite corner post. The other end of each side bar is provided with a quick detachable and yieldable fastening means shown in Fig. 3 as comprising the snap fastening member 24 adapted to receive the cooperative fastener member 25. These fastener members 24 and 25 are preferably arranged on the bottom and top side of the side bars as shown in Fig. 4 so that any downward thrust on the side bars is transmitted directly to the member 25 from the upper side bar while any upward thrust is transmitted from the lower side bar 20 to the cooperative fastener member 25 secured to the corner post 11. After the fastener member has been engaged the latch 27 pivoted at 28 on the inner face of the side bars engages the screw 29 for holding the two pivotal sections of the side bars in extended position. As shown in Fig. 6 this latch 27 is preferably located in a countersink or recess 30. As shown in Fig. 1 straps 31 or other convenient securing means may retain the parts in folded position.

One feature of this invention contemplates the longitudinal bed frame members 13 being located below the top side bars 19 as shown in Fig. 1 so that when folded this bed is much narrower at the top than at the bottom with the result that a wide and stable foundation is provided, thereby adapting this construction for use in an automobile where the bed when folded may safely stand on the floor of the car without danger of being tipped over by the usual shocks and bumps. A yieldable material 15 gives comfort without recourse to heavy mattresses. Since the bed frame members are permanently connected to the ends and centrally pivoted as shown the side bars are disconnected at diagonally opposite corners by means of a snap type fastener of the construction illustrated in Fig. 3. When located as illustrated in Figs. 3 and 4 these fasteners may cooperate with the side bars to serve as abutments for oppositely directed thrusts without straining the yieldable portions of the fastener.

When made of maple the complete crib including the canvas 15 will weigh only about 22 pounds and from the closed position shown in Fig. 1 the bed may be fully opened for use with both side bars firmly secured to the end members in about 10 seconds and without the necessity for using any tools. As the rungs 21 of the side bars are all inwardly of the longitudinal bed frame members 13 it may be seen from Figs. 1 and 2 that the only element which might be engaged by the rungs when the crib is in folded position is the canvas 15. Since this canvas is flexible it may if necessary be bent slightly by the rungs adjacent the top side bars 19.

In the open position shown in Fig. 4 the bed is closed by first releasing the latches 27 located on the inner face of each upper side bar 19. This allows the quick detachable fasteners to be disengaged at one end of the side bars and such side bars on one side of the bed folded inwardly to a position contiguous the end of the bed as shown in Fig. 2. The side bars on the other side of the bed are then folded inwardly contiguous the opposite end of the bed. When the side bars have been moved out of the way contiguous each end of the bed the longitudinal frame members 13 may then be readily swung upwardly with the aid of a hand or foot. As these bed frame members are folded upwardly the end members 10 are

drawn together. The frame members 13 are so arranged that their weight keeps them in extended position as shown in Figs. 2 and 4. The brackets 17 space the pivots 18 from the end members 10 far enough so that the side bars 20 may be folded between the end portions and these bed frame members in folded position.

When the latches 27 are in the position shown in Fig. 5 both the upper and lower side bars are maintained in extended position with their detachable ends abutting the corner posts 11. With the fastening means 24 and 25 illustrated the detachable ends of the side bars are thus maintained against movement in any direction, the fastener elements 24 and 25 preclude any lost motion in one direction, while the side bars abutting the corner posts preclude movement in another direction and the fastener elements 25 abutting the sides of the side bars preclude movement in the third direction.

This invention is not designed as a crib for use in automobiles but is to be used in place of a child's regular crib at hotels, tourist houses, for camping, picnics, visiting friends or relatives, and for any other temporary use. In addition this crib will find application in homes and hospitals where a crib has to be moved out of the way during the day and put up at night.

We claim:

1. A folding bed comprising end members, a bed frame having longitudinal members between which is carried a flexible supporting material, said longitudinal frame members being pivotally connected to the end members of the bed and also pivotally jointed centrally to swing upward between said end members drawing the end members toward each other, and side guards connecting and bracing said end members above said bed frame when the bed is open, each of said side guards having at least two portions pivotally connected and being diagonally oppositely pivoted to the end members for rotation horizontally whereby each of the side guards may be folded in an upright position between the frame when folded and an end member, the pivot of said longitudinal members of the bed frame adjacent the end members being spaced from the end members an amount in excess of twice the thickness of said side guards, said side guards comprising upper and lower longitudinal members, connecting means between said upper and lower longitudinal side guard members, said means being arranged so that a portion of the longitudinal bed frame members when folded may be placed between said upper and lower longitudinal side guard members, the bed frame longitudinal members when folded being below the upper longitudinal members of said side guards, whereby the bed when folded may be thinner at the top than at the bottom and the end members inclined to provide a wide supporting base.

2. A folding bed comprising end members, a bed frame having longitudinal members between which is attached a flexible supporting material, said longitudinal frame members being pivotally jointed centrally to swing upward between said end members drawing the end members toward each other, foldable side guards connecting and bracing said end members above the bed frame when the bed is open, each of said side guards being jointed to collapse and fold contiguous an end member to which it is hinged and each side guard also being shaped to abut opposite end members with the sections of each side guard being

butt-connected to resist a compressive stress applied by the end members due to the weight of an occupant of the bed being applied to the end members out of their planes and tending to rotate said end members about the floor as pivot and toward each other, each of the side guards being removably connected to an end member by a quickly yieldably engageable snap fastener adapted to be closed on movement of the side guard end in a direction substantially normal to the plane of the end member, and each side guard being provided with latching and stiffening means to maintain its sections in extended position.

3. A folding bed comprising end members, a bed frame having longitudinal members between which is attached a flexible supporting material, said longitudinal frame members being pivotally connected to the end members and also pivotally jointed centrally to swing upward between said end members drawing the end members toward each other, side guards connecting and bracing said end members above the bed frame when the bed is open, each of said side guards being jointed to collapse and fold adjacent an end member to which it is hinged and each side guard also being shaped to abut opposite end members with the sections of each side guard being butt-connected to resist a compressive stress applied by the end members due to the weight of an occupant of the bed being applied to the end members out of their planes and tending to rotate said end members about the floor as pivot and toward each other, each of the side guards being removably connected to an end member by a quickly and yieldably engageable snap fastener adapted to be closed on movement of the side bar end in a direction substantially normal to the plane of the end member, each end member including a pair of corner posts, a metal plate fastened to each of the inner and transversely opposite corner post faces and extending longitudinally for said pivotal attachment of a longitudinal frame member intermediate the ends of said longitudinal frame member, a rigid lateral brace between said longitudinal frame members at each end arranged so that at least a portion of each lateral brace is longitudinally outside the bed frame pivots, said flexible supporting material being solely supported between said braces and longitudinal members and each side guard being provided with means to maintain its sections in extended position.

4. A folding bed comprising end members, longitudinal frame members pivotally connected to the end members and centrally jointed to fold upwardly drawing the end members closer together, foldable side guards, each side guard being pivotally connected to an end member and having portions pivotally connected for folding against an end member and between the longitudinal frame members and the end member to which connected, the jointed portions of each side guard being stiffened to rigidly transmit compressive stresses without any substantial joint looseness, each side guard being engaged with an end member by a joint to rigidly transmit compressive stresses and adapted to be disengaged by separation of the side guard and end member in a direction substantially normal to the plane of the end member as the side guard is swung about its pivotal connection to an end member and the side guard portion adjacent said end member joint is swung about its central joint.

5. A folding bed comprising end members, a bed frame having longitudinal members between which is carried a flexible supporting material, said longitudinal frame members being pivotally connected to the end members and also pivotally jointed centrally to swing upward between said end members drawing the end members toward each other, and foldable side guards connecting and bracing said end members above said bed frame when the bed is open, each of said guards being pivotally connected to an end member for folding into a substantially upright position between the frame when folded and an end member, the side guards when folded being capable of contacting with each other above the folded frame members, the pivotal connection of the end members to the longitudinal frame members being at least about twice the thickness of the side guards from the end members and said end members being capable of being inclined toward each other.

6. A folding bed comprising end members, a bed frame having longitudinal frame members between which is carried a flexible supporting material, said longitudinal frame members being pivotally connected to the end members and having portions pivotally connected to swing upward between said end members drawing the end members toward each other, and foldable side guards connecting and bracing said end members above said bed frame when the bed is open, each of said side guards being pivotally connected to an end member for rotation substantially horizontally whereby each may be moved in an upright position between the frame when folded and an end member, the side guards when folded being adapted to be inclined with respect to the frame members when folded until the folded side guards substantially abut adjacent the top of the folded bed, the end members being inclined to about the same amount as said side guards whereby a wide foundation may be provided for the folded bed at the base of said end members and space economy provided at the top of folded bed.

7. A folding bed comprising end members, a bed frame having longitudinal members between which is carried a flexible supporting material, said longitudinal frame members being pivotally connected to the end members and also having portions connected to swing upward between said end members drawing the end members toward each other, and foldable side guards connecting and bracing said end members above said bed frame when the bed is open, each of said side guards being pivotally mounted to an end member for rotation substantially horizontally whereby each may be swung in an upright position between the frame when folded and an end member, the longitudinal frame members being transversely connected adjacent their pivotal portions solely by the flexible supporting material, said side guards comprising upper and lower members connected by rungs spaced inwardly of the ends of said side guards in amount sufficient to permit the longitudinal frame members being folded into the space outside the rungs of the side guards and below the upper members of the side guards.

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