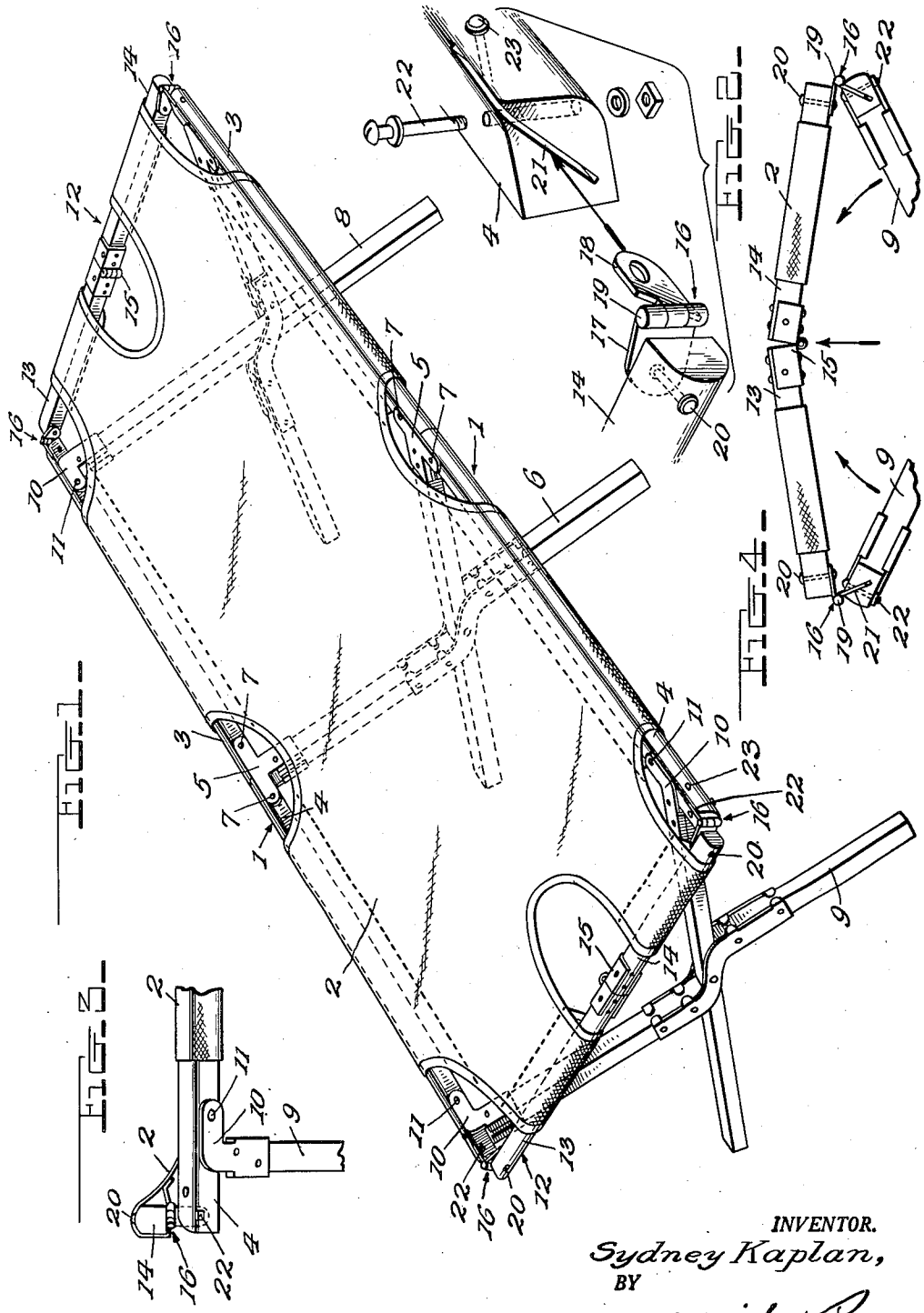
April 1, 1952 S. KAPLAN 2,591,551

FOLDING COT

Filed Sept. 13, 1948 2 SHEETS—SHEET 1



INVENTOR.
Sydney Kaplan,
BY
Baldwin, Wight & Prevost,
Attys.

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FIG. 7.

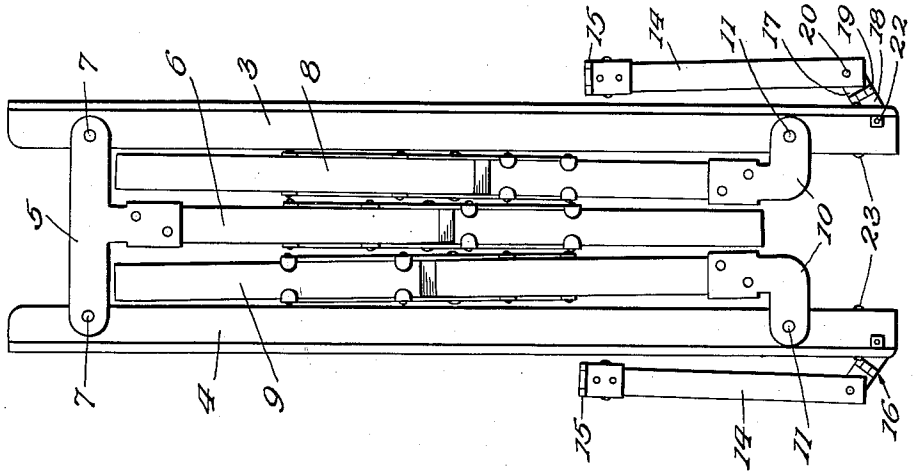


FIG. 6.

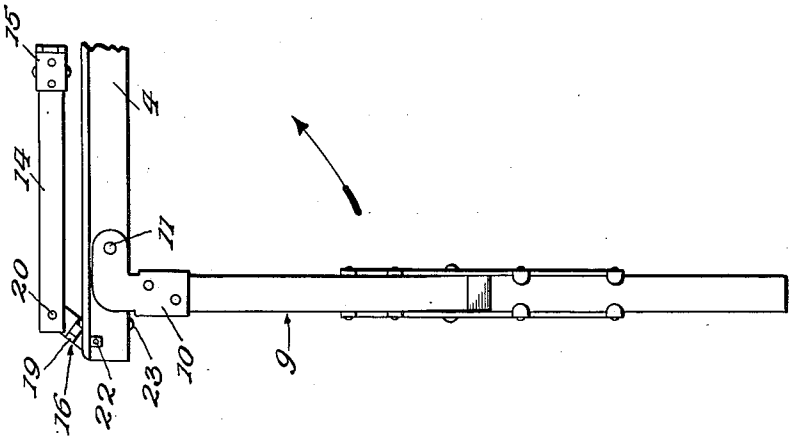
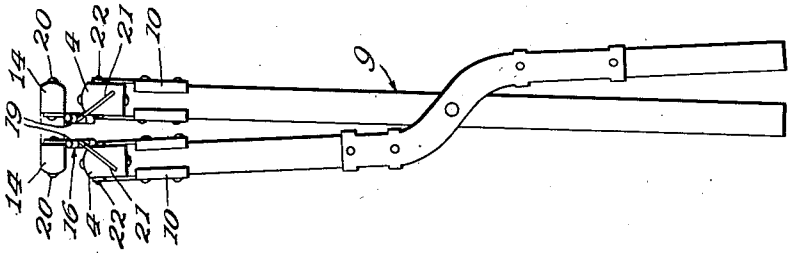


FIG. 5.



INVENTOR.
Sydney Kaplan,
BY
Baldwin, Wight & Brevost,
attys.

Patented Apr. 1, 1952

2,591,551

UNITED STATES PATENT OFFICE

2,591,551

FOLDING COT

Sydney Kaplan, Trenton, N. J.

Application September 13, 1948, Serial No. 49,038

7 Claims. (Cl. 5—110)

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My invention consists in new and useful improvements in a folding cot and has for its object to provide a frame structure which is capable of being folded with a maximum of compactness and at the same time provides a durable and rigid structure when in open or extended position.

I am aware of many previous efforts to solve the problems which have been confronted in designing a practical and easily manipulated folding cot without sacrificing its qualities of durability and sturdiness when in use. In all of these previous structures with which I am familiar, and particularly those embodying folding side rails and a third or middle set of legs or supports, the disposal of the end rails or cross braces, when the cot was folded, presented a difficult problem. In some instances it was necessary to completely remove the end rails when the cot was folded while in others, the end rails were hinged and their sections foldable in a concurrent movement with the longitudinal folding of the cot.

Obviously, the removal of the end rails each time the cot is folded, and their replacement when the cot is extended, constitutes an objectionable and awkward operation, and the mere provision of hinged and foldable end rails failed to completely solve the problem of practicability. When the end rails simply fold inwardly, as the cot is folded longitudinally, they usually interfere with the compact nesting of the legs and side rail sections.

It is therefore the primary object of the present invention to provide, in a cot embodying foldable side rails and a central support, end rails comprising sections centrally hinged for folding movement and having three-way pivotal connections at opposite ends, whereby the end rails are articulated to the extremities of adjacent side rails for three separate and distinct pivotal movements which facilitate the compact nesting of the parts.

Another object of my invention is to provide a centrally hinged end rail structure which, in one position, when the cot is fully opened, is so disposed as to prevent hinging movement of its sections, said end rail being shiftable to a second position to permit its sections to be converged when the cot is folded longitudinally, and to a third or nested position when the cot is finally folded.

With the above and other objects in view which will appear as the description proceeds, my invention consists in the novel features herein set forth illustrated in the accompanying drawings

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and more particularly pointed out in the appended claims.

Referring to the drawings in which numerals of like character designate similar parts throughout the several views:

Figure 1 is a perspective view of my improved cot in extended or open position;

Figure 2 is an enlarged detail perspective showing the three-way pivotal connection between the end rail and side rail, the parts being disassembled for clarity;

Figure 3 is a fragmentary view in side elevation of one end of the cot frame showing the first of the three pivotal movements of the end rail in the course of folding the cot;

Figure 4 is a fragmentary view in end elevation showing the end rail sections at the start of their second pivotal movement;

Figure 5 is a view in end elevation showing the side rails and cross pivoted legs in folded position with the end rail in its final position after the third of its pivotal movements;

Figure 6 is a fragmentary view in side elevation showing the parts in the same positions as those in Figure 5; and

Figure 7 is a plan view showing the complete frame with its parts in their final nested position.

The main frame of the cot comprises a pair of side rails generally indicated by the numeral 1, over which is stretched the usual flexible sheet 2 which may be composed of canvas or other suitable material, secured to the frame by the conventional hem which embraces the adjacent sections of the frame. Each of the side rails 1, is formed of two sections 3 and 4 normally arranged in end to end or coaxial alignment and pivotally connected at their adjacent extremities by a pair of T-shaped plates 5, arranged on either side of the rails and bridging the adjacent ends of the sections. The vertical legs of the plates 5 are bolted or riveted to a central support 6 which is preferably in the form of a pair of cross pivoted legs. The pivots 7 connecting the side rail sections 3 and 4 to the T-plate 5 are located at substantially the longitudinal extremities of the T and are so disposed with respect to the adjacent ends of the side rail sections, as to permit respective sections to be folded substantially parallel, but in spaced relation, to the central support 6, as will hereinafter appear.

At opposite ends of the side rails I provide end supports 8 and 9 which, similar to the central support 6, are formed of cross pivoted legs arranged respectively in parallel relation to the

legs of the central support 6. The upper extremities of the end supports 8 and 9 are pivotally connected to the respective side rail sections by means of L-shaped plates 10, arranged on either side of the side rails, the vertical legs of the L's being bolted or riveted to respective end supports 8, 9. The arrangement of the pivots 11 connecting the plates 10 to the side rails is such as to permit the end supports 8 and 9 to be folded bodily into parallel relation with respective side rail sections 3 and 4 and, when said side rail sections are folded on their pivots 7, to position the end supports 8 and 9 in the spaces between the central support 6 and the adjacent side rail sections, as shown in Figure 7.

At each end of the cot frame, I provide an end rail or cross brace generally indicated by the numeral 12, formed in two sections 13 and 14, arranged in end to end or coaxial alignment and hinged together at their adjacent ends by a central hinge member 15. The outer extremities of the end rail sections are articulated to the adjacent ends of respective side rail sections by means of hinge elements 16 shown in detail in Figure 2, which are so designed as to permit three-way pivotal movement of the end rails.

Each of the hinge elements 16 comprises two hinge plates 17 and 18, hinged together at 19. The hinge plate 17 is pivotally connected as at 20 to one end of the adjacent rail section 13, 14, while the other hinge plate 18 is pivotally connected to the adjacent end of a side rail section 3, 4. In the case of this latter connection, it will be noted that the extremity of each side rail section 3, 4 is diagonally and transversely slotted as at 21, to receive the hinge plate 18 which is twisted at an angle to coincide with the inclination of the slot 21. A bolt and nut 22 passes through an opening in the hinge plate 18 and pivotally secures the hinge plate in the slot 21. The plate 18 of the hinge 16 is confined in the slot 21 to swing about an axis which is inclined with respect to the bolt 22 and which is inclined with respect to the axis of the hinge 15 when the associated end rail 13—14 is extended. In order to reinforce and strengthen the slotted end of the side rail, a transverse bolt 23 is preferably inserted and held in place either by riveting or by the application of a threaded nut. Thus, the end rails 12 are capable of three distinct pivotal movements, by virture of the pivots 19, 20, and 22, as will be hereinafter described.

It will be observed that when the cot frame is in fully open position (Fig. 1), the end rails 12 are disposed at the ends of respective side rails 1 and lie in the same plane therewith. In this position the hinges 15 are turned so that the hinge pins are vertical or perpendicular to the axes of the pivots connecting the legs of the supports 6, 8 and 9. Thus, the folding of the end rail section on the hinges 15 is prevented and at the same time the legs of the supports are retained in extended position.

In the operation of my improved folding cot, let us assume that the structure is in the position shown in Fig. 1 and it is desired to fold the cot for packing or shipping. The two end rails 12 are first rotated in an arc about the opposite pivots 22 passing through the side rails 1, bringing said end rails into the position shown in Figure 3, in a plane above and bridging the adjacent ends of the side rails. The hinges 15 connecting the end rail sections are now in position to permit folding of the end rail sections upon one another, as the axis of each of the hinge

pivots is parallel with the axes of the pivots of the supports 6, 8 and 9. The legs of the supports 6, 8 and 9, are then swung on their pivots, which simultaneously breaks the end rail sections 13 and 14 at the hinges 15, so that said end rail sections are folded against one another as the side rails converge. The commencement of this operation is shown in Figure 4. After the side rails 1 have been moved together and the sheet 2 folded on a line running longitudinally of the frame, the folded end rails are swung downwardly to the position shown in Figures 5 and 6 so that they are substantially parallel with the side rail sections 3, 4.

As will be seen from Fig. 7, the end supports 8 and 9 are then swung inwardly on their pivots 11 so that they lie along the underside of the respective side rail sections 3, 4, in substantially parallel relation thereto, and thereafter the side rail sections are folded on their pivots 7 to bring the folded end supports 8, 9 adjacent to the central support 6.

From the foregoing, it is believed that my invention may be readily understood by those skilled in the art without further description, it being borne in mind that numerous changes may be made in the details of structure without departing from the spirit of the invention as set forth in the following claims.

I claim:

1. In a folding cot having a pair of side rails, a body supporting sheet of flexible material carried by said rails, and a plurality of pairs of crossed legs carried by said side rails with the legs of each pair pivoted to each other; a pair of end rails, each comprising two normally coaxial sections hinged together at adjacent ends, and means articulating their opposite ends to respective side rails for three-way pivotal movement, whereby when folding said cot, each of said end rails may be swung first in an arc about and axis parallel to the axis of said end rail, then its sections folded at their hinged connection and then swung to a position substantially parallel to the adjacent side rails.

2. In a folding cot having a pair of side rails, a body supporting sheet of flexible material carried by said side rails, and a plurality of pairs of crossed legs carried by said side rails with the legs of each pair pivoted to each other; a pair of end rails, each comprising two normaly coaxial section hinged together at adjacent ends and means connecting the opposite ends of said end rails to respective side rails for multiple movement, first about an axis transverse to the axes of said side rails, then about an axis substantially parallel to the axis of said side rails and then about an axis transverse to the axes of the sections of said end rails.

3. In a collapsible cot, a longitudinally and transversely foldable, rectangular frame including foldable side rails and foldable end rails, multi-pivot hinge elements for connecting the opposite ends of said end rails to the adjacent ends of respective side rails, each element comprising two centrally pivoted hinge plates, means pivoting one of said plates to the respective side rail for movement about an axis transverse to the axis of said latter side rail, means pivoting the other of said plates to the respective end rail for movement about an axis transverse to the axes of said side rails.

4. In a collapsible cot frame including foldable side rails and cross pivoted legs therefor; end rails each comprising two sections hinged together at

adjacent ends, hinge elements connecting the opposite ends of said end rails to the adjacent extremities of said side rails, each of said hinge elements comprising two hinge plates, one of said hinge plates being connected to the respective side rail by a pivot which extends transversely through the latter, whereby said end rail may be swung in an arc and into a plane parallel with but above that of said side rails, the other of said hinge plates being connected to said end rail by a pivot which extends transversely through the latter, whereby when said end rail sections are folded on their central hinges, they may be swung downwardly into substantially parallel engagement with the adjacent side rails.

5. In a collapsible cot frame, including side rails and end rails, each formed of two transversely and centrally hinged sections adapted to be collapsed in folded position and extended in aligned position; means connecting said end rails to said side rails at their adjacent extremities, comprising multi-pivotal hinge elements, each hinge element consisting of two hinge plates, first pivot means connecting said hinge plates, second pivot means connecting one hinge plate to the adjacent end of a side rail for movement about an axis transverse to that of the latter, and third pivot means connecting the other hinge plate to the adjacent extremity of an end rail for movement about an axis transverse to that of said end rail, the axis of the central hinge of each end rail, when the latter is extended, being disposed substantially parallel to the axis of said first pivot means and substantially perpendicular to the axis of said third pivot means and at an inclination to said second pivot means, whereby when said end rails are fully extended they lie in a plane with said side rails, with their central hinges positioned against pivotal movement, said end rails adapted to be swung bodily in an arc about said second pivot means to dispose them in a plane above said side rails with said central hinges positioned to permit pivotal movement for converging the sections of said end rails when the cot is folded, said converged sections being foldable about said third pivot means, into substantially parallel engagement with said side rails.

6. A cot frame as claimed in claim 5, wherein the ends of said side rails are slotted longitudinally to receive the respective pivoted hinge plates.

7. A cot frame as claimed in claim 5, wherein one of the pivoted plates of each hinge is twisted at a slight angle to the axis of said hinge and the ends of said side rails are longitudinally slotted diagonally at a compensating angle to the vertical to receive said twisted plates.

SYDNEY KAPLAN.

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