

Feb. 14, 1950

M. T. LARIN
FOLDING CHAIR

2,497,412

Filed Dec. 4, 1945

3 Sheets-Sheet 1

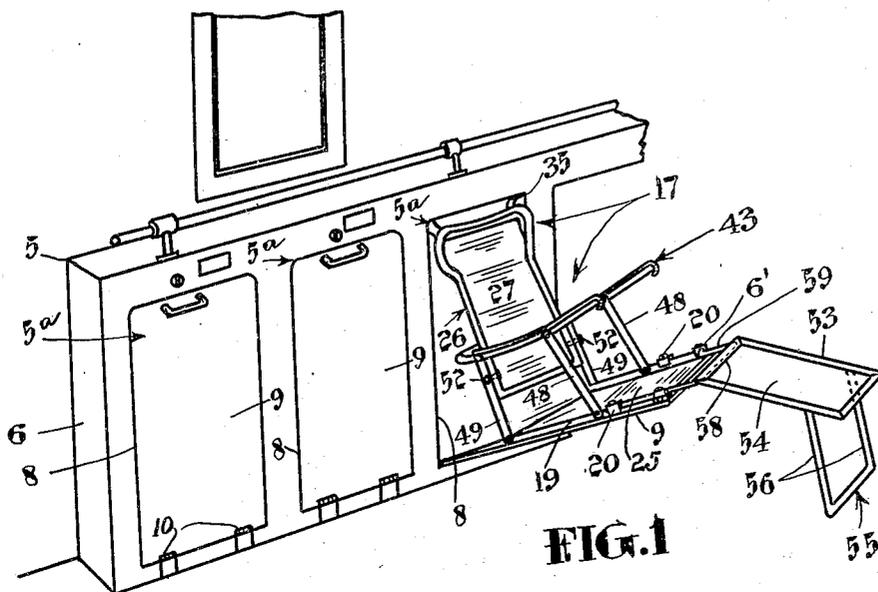


FIG. 1

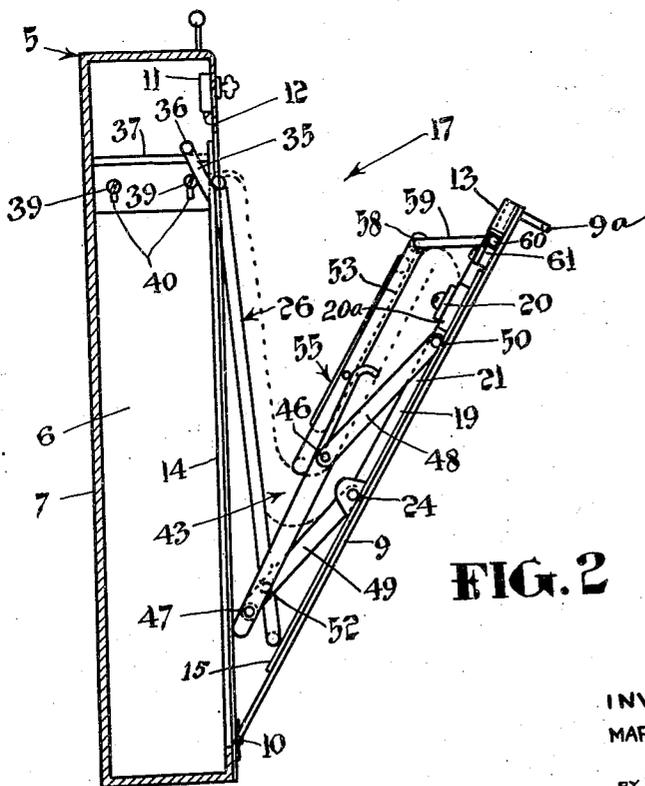


FIG. 2

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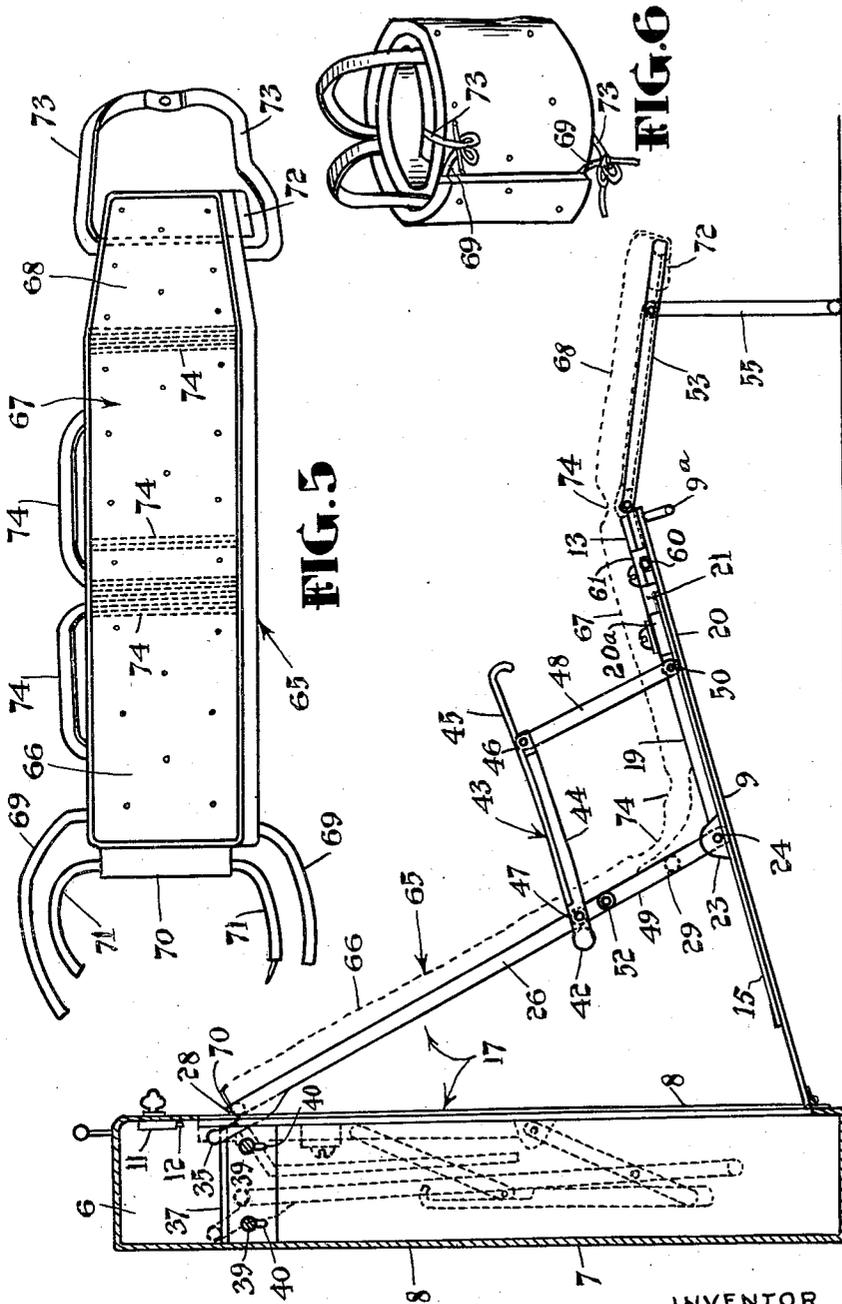


FIG. 5

FIG. 6

FIG. 3

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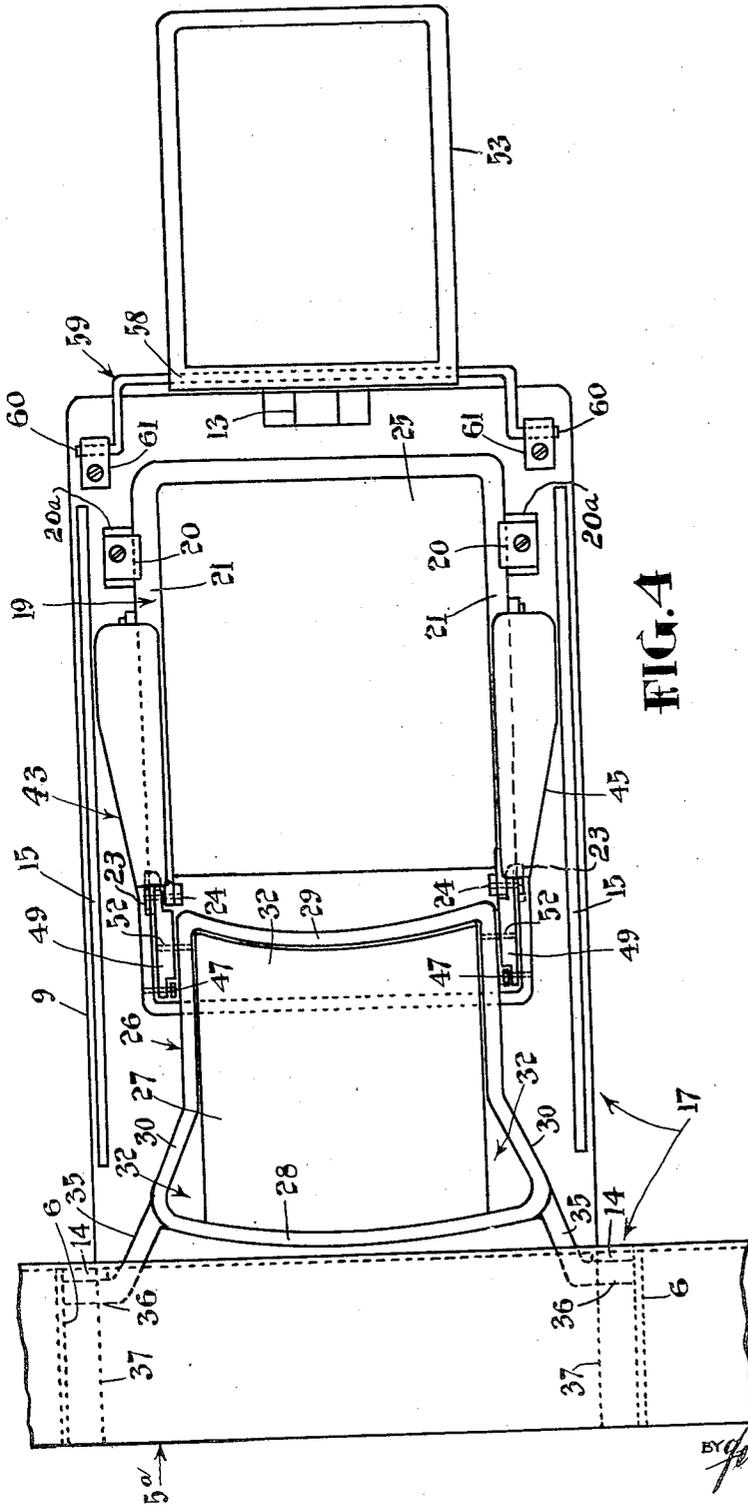


FIG. 4

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UNITED STATES PATENT OFFICE

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FOLDING CHAIR

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4 Claims. (Cl. 155-83)

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This invention relates to improvements in so-called disappearing chair installations in which component parts of a folding chair are associated with a housing structure in which said parts are housed in the folded condition of the chair.

The object of the invention is to provide an improved disappearing chair installation in which a back member, a seat member and a collapsible arm-rest structure are interconnected with each other and with the door and casing of a chair enclosing locker so that the component parts of the chair installation are caused to assume a set-up position when the door of the locker is swung to open position and are disposed in a folded position within the casing of the locker when said door is swung to its closed position.

Another feature of the invention consists in the provision of a combined seat cushion and life belt for covering the back, seat, and foot-rest frames of the chair unit. This feature is important in cases where the chair unit is installed on the deck of a ship.

In the practice of this invention I preferably provide a row of collapsible deck chair units constructed as described herein, the lockers of the several units being arranged in side by side relation and equipped with locking means for securing the doors thereof in closed position. Such an installation provides an orderly arrangement of the chairs so that they occupy a minimum space and also eliminates possibility of the chairs being stolen or shifted from their original positions. When not in use, or in case of bad weather, each chair may be quickly and easily collapsed and housed in its locker by the simple act of closing the front door of the locker. Each chair may be assigned to a particular occupant so that, when the chair is collapsed and locked in place within the locker, it cannot be extended and used by another person until the latter is provided with the proper key. When the installation is used on board ship, each locker may be provided with a number and name plate to identify the passenger ownership so that the chair assigned to any passenger can be easily located by the owner or by ship officials.

The foregoing and other features and advantages of the invention will be more readily understood from the following detailed description taken in connection with the accompanying drawings, in which—

Figure 1 is a perspective view of a deck chair installation embodying my invention.

Figure 2 is a view, partly in vertical section and partly in side elevation, of one of the chair units

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showing the component parts in a partly folded condition.

Figure 3 is a view similar to Fig. 2, but showing the component parts of the chair unit in fully set-up condition.

Figure 4 is a plan view of the assembly shown in Fig. 3.

Figure 5 is a plan view of a combined seat cushion and life preserver.

Figure 6 is a perspective view showing how the combined seat cushion and life preserver shown in Fig. 5 is arranged when used as a life preserver.

Referring more particularly to the drawings, 5 designates a locker cabinet provided with end walls and internal partition walls 6 dividing the interior thereof into a series of lockers 5a, each provided with a rear wall 7, a front opening 8 and a door 9 for closing said opening. A suitable handle 9a is fastened to door 9 to facilitate operation thereof to open or closed position.

The locker doors 9 swing in a vertical direction and are hinged to the front wall 5a of the cabinet by hinges 10 located at the lower end edges of the doors. Each door is locked in closed position within the door opening 8 by a key operated lock 11 located at the upper edge of said opening. Each lock 11 includes a spring projected bolt 12 which is automatically interlocked with a keeper plate 13 carried by the upper end of door 9 when the latter is swung to its closed position.

Door-stop flanges 14 are provided along the side edges of each door opening 8 and each door 9 is preferably provided with reinforcing members 15 (Fig. 4) which fit between the stop flanges 14 when the door is closed and locked. Each locker and its door 9 constitute component parts of a collapsible deck chair unit generally indicated at 17. Since these units 17 are of duplicate construction the following description of one will suffice for all.

Each unit 17 includes a seat frame 19 flatly secured to the inner side of the upper half of one of the doors 9. The front end of seat frame 19 is positioned close to the upper end of the door and is held thereto by removable retaining plates 20 overlying the seat-frame side members 21 and fastened to supporting blocks 20a carried by the door. The rear portion of seat frame 19 is anchored at each side to lugs 23 by pivot bolts 24. A seat plate 25 closes the central opening of seat frame 19 and is welded or otherwise secured thereto.

A back member 26, forming part of each unit 17, carries a back member 27 which is here shown as a sheet metal plate welded or otherwise secured to

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said frame. The upper end member 28 of back frame 26 is wider than the lower end member 29 and the upper portions 30 of the back-frame side members 31 are curved outwardly so that they are separated from the sides of the back member 27 by clearance openings 32. The lower portions of the back-frame side members 31 lie parallel with each other and are spaced apart a distance substantially less than the width of the front locker opening 8.

The back frame 26 is provided with two suspension members 35 extending upwardly from the upper corners thereof. These suspension members 35 are bent or shaped to provide outwardly directed horizontal end portions 36 which slide and pivot on horizontal supporting tracks 37 adjustably fastened to the upper portions of the side walls 6 of the locker. These tracks 37 extend from the rear wall 7 to the stop flanges 14 of the locker and are fastened in place for vertical adjustment by means of fastening screws 39 passing through vertically elongated slots 40 provided in said tracks.

The lower portion of back frame 26 is positioned in front of the central portion 42 of a U-shaped arm-rest frame 43. The side arms 44 of frame 43 carry suitable arm rests 45 welded or otherwise secured thereto. When the chair unit is in the set-up condition the side arms 44 of the arm-rest frame 43 extend forwardly from the back frame 26 as shown in Fig. 3.

Each side arm 44 of the arm-rest frame 43 is fastened, by front and rear pivot connections 46 and 47 to the upper ends of front and rear supporting posts 48 and 49. The lower end of each front supporting post 48 is fastened, by a pivot connection 50, to the adjacent side arm of the seat frame 19 at a point adjacent one of the seat frame retaining clips 20. Each rear supporting post 49 is fastened to one of the pivots 24 anchoring the rear end of seat frame 19 to the door 9. The rear supporting posts 49 of arm-rest frame 43 are also intermediately pivoted to the lower portion of the back frame 26 by pivots indicated at 52.

Each chair unit 17 also includes a foot-rest frame 53 to which a foot-rest plate 54 is welded or otherwise secured. The foot-rest frame 53 is also equipped with a foldable U-shaped supporting leg 55 having the free ends of its side arms 56 pivoted to the sides of frame 53 adjacent the forward end thereof. The rear end member of foot-rest frame 53 includes a tubular sleeve 58 rotatably mounted on the central portion of a bail-shaped hinge or pivot member 59 having terminal trunnions 60 journaled in sectional trunnion bearings 61 carried by door 9 at points adjacent the front end of seat frame 19. The leg 55 is narrower than frame 53 and is foldable to a collapsed position in which it lies between the sides of frame 53 and against the bottom of the foot-rest plate 54. The hinge or pivot member 59 permits frame 53 to be moved to or from a folded position overlying seat frame 19.

When each chair unit 17 is in its set-up condition the relative arrangement of the component parts is substantially as shown in Figs. 1, 3 and 4. On referring to these figures it will be noted that the back frame 26 is suspended from the track members 37 by the suspension members 35 which, in the set-up condition of the unit, are positioned with their end portions 36 located at the front ends of the track members 37 and against the upper end portions of the door stop flanges 14. The back frame 26 also serves to support the

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door 9 in the open position since the door and the lower portion of the back frame are interconnected by the rear supporting posts 49 of the arm-rest frame 43.

It will also be noted that, in the set-up condition of unit 17, foot-rest frame 53 is unfolded and extends forwardly beyond the adjacent end of door 9, being supported in this position by the supporting leg 55 which is unfolded to extend downwardly therefrom.

When not required for use chair unit 17 is collapsed by closing door 9 so that all the component parts except said door are folded into the locker 5a and concealed from view. In this connection it will be understood that, prior to closing door 9, the foot-rest frame 53 and its supporting leg 55 are folded together and then swung to a position overlying the seat frame 17 as shown to advantage in Fig. 2.

During closing of door 9, the back frame 26 initially pivots on track members 37 so that the lower portion of the back frame swings rearwardly and acts through the pivotal connections 52 to collapse arm-rest frame 43 and its supporting posts 48 and 49 so that these parts are disposed in the dotted line position shown in Fig. 3 when door 9 is fully closed and locked. As door 9 moves to its finally closed position against the door stop flanges 14 the suspension members 35 and the upper end of back frame 26 are forced rearwardly along tracks 37 to a position adjacent the rear wall 7 of the locker.

When it is desired to set up the chair unit 17 the door 9 is unlocked and swung downwardly to the position shown in Fig. 3. During the early part of the opening movement of the door the upper end of the back frame 26 and its suspension members 35 are pulled forwardly along the tracks 37 until further forward movement thereof is arrested by the end portions 36 of the suspension members coming in contact with the upper portions of the door stop flanges 14. When this occurs the continued downward movement of door 9 causes the back frame 26 to pivot on the tracks 37 so that the lower portion of the back frame continues to swing forwardly and, in so doing, acts through the pivotal connections 52 to assist in swinging the arm-rest frame 43 and its supporting posts 49 and 48 to the set-up condition shown in Fig. 3. The foot-rest frame 53 and its supporting legs 55 are then swung from the folded and collapsed position shown in Fig. 2 to the extended operative position shown in Fig. 3.

In Figs. 5 and 6 I have shown a combined cushion and life belt 65 designed to cover the back, seat and foot-rest frames of the collapsible chair unit previously described. This combined cushion and life belt comprises a back-frame covering portion 66, a seat-frame covering portion 67, and a foot-rest frame covering portion 68. The back-frame covering portion 66 is provided with fastening straps 69 and also with a flap extension 70 equipped with fastening straps 71. The foot-rest frame covering portion 68 is formed with a pocket 72 and with straps 73. The combined cushion and life belt 65 is also provided with suitable shoulder straps 74 adapted to be engaged over the shoulders of the wearer when the sections 66, 67 and 68 are wrapped around the body of the wearer and secured in place by tying the straps 69 to the straps 73 to provide a life belt.

The combined cushion and life belt is applied to the chair as indicated by dotted lines in Fig. 3, the outer end of the foot-rest frame 53 being fitted

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in the pocket 72 and the flap extension 70 being passed rearwardly over the top member 28 of the back frame 26 and secured in place by the straps 71. The combined cushion and life belt preferably includes a leatherette covering with a slow-burning asbestos base and is filled with kapok or other suitable filling material. The combined cushion and life belt 65 is thinned down and seamed at critical points as indicated at 74 to permit of easy folding of the cushion with the chair unit when the latter is collapsed into the locker.

Having thus described the nature of my invention and a preferred embodiment thereof, it will be understood that various modifications may be resorted to within the scope and spirit of the invention as defined by the appended claims.

I claim:

1. A collapsible deck chair installation comprising a locker provided with a front opening and a door for said opening hinged at its lower end, a seat structure carried by the door at the inner side thereof, a back structure mounted for swinging movement into and out of said locker by supporting means located at the upper end of the back member and within the upper portion of the locker, and a collapsible arm-rest structure comprising a U-shaped arm-rest frame including a central portion positioned rearwardly of the lower portion of the back structure and side arms which project forwardly from the back structure in the set-up condition of said arm-rest structure, front and rear supporting posts for each side arm of said arm-rest frame, the front supporting posts having their upper ends pivoted to the sides of the arm-rest frame and their lower ends pivoted to said door, the rear supporting posts also having their upper ends pivoted to the sides of the arm-rest frame and their lower ends pivoted to said door, said rear posts being also intermediately pivoted to said back structure.

2. A collapsible deck chair installation comprising a locker provided with a front opening and a door for said opening hinged at its lower end, a seat structure carried by the door at the inner side thereof, horizontal track members secured to the upper portions of the side walls of the locker and extending from the rear to the front of the locker, a back member provided, at its upper corners, with rigid suspension members provided with track-engaging portions resting on and movable along said tracks, said suspension members being free to turn on said track members to permit the back member to swing into and out of the locker, a U-shaped arm-rest frame member including a central portion positioned rearwardly of the lower portion of the back member and side arms which extend forwardly from the back member in the set-up condition of the chair installation, a pair of front supporting posts having their upper ends pivoted to the sides of the arm-rest frame and their lower ends pivoted to the door, and a pair of rear supporting posts having their upper ends pivoted to the sides of the arm-rest frame and their lower ends pivoted to the door, intermediate portions of said rear posts being pivoted to side portions of the back frame.

3. A collapsible deck chair installation comprising a locker provided with a front opening

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and a door for said opening hinged at its lower end, a seat structure carried by the door at the inner side thereof, a foot-rest member hinged to the door by a bail-shaped hinge or pivot member having terminal trunnions mounted in trunnion bearings carried by the door adjacent the front end of the seat structure, a foldable leg pivotally connected to said foot-rest member, a U-shaped arm-rest frame, a pair of front supporting posts having their upper ends pivoted to the side members of the arm-rest frame and their lower ends pivoted to the inner side of said door, a pair of rear supporting posts also having their upper ends pivoted to the sides of the arm-rest frame and their lower ends pivoted to said door, said arm-rest frame being arranged with its side portions extending in the direction of the upper end of the door and a back member mounted for swinging movement into and out of said locker by supporting means located at the upper end of the back member and within the upper portion of the locker, the lower portion of said back member being positioned forwardly of the central portion of the arm-rest frame and being pivotally secured to intermediate portions of said rear supporting posts.

4. A collapsible deck chair installation comprising a locker provided with a front opening and a door for said opening hinged at its lower end, horizontal track members secured to the upper portions of the side walls of the locker and extending from the rear to the front opening of the locker, stop members located at the front ends of said track members, a back member having its upper portion suspended from the track members by suspension members rigidly attached to the back member and provided with track-engaging portions arranged to slide forwardly and rearwardly along the track members and to turn thereon to permit of swinging movement of the back member into and out of the locker, a pair of rear post members having their lower ends pivoted to the inner side of said door and having intermediate portions thereof pivoted to the sides of the lower portion of the back member, a pair of front post members having their ends pivoted to the inner side of said door, a U-shaped arm-rest frame including a central portion positioned rearwardly of the lower portion of the back member and side arms carried by and pivoted to the upper ends of said post members.

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