April 18, 1939. A. B. BELL 2,154,600

REVERSIBLE SEAT-BACK BASE

Filed Nov. 1, 1935 4 Sheets-Sheet 1

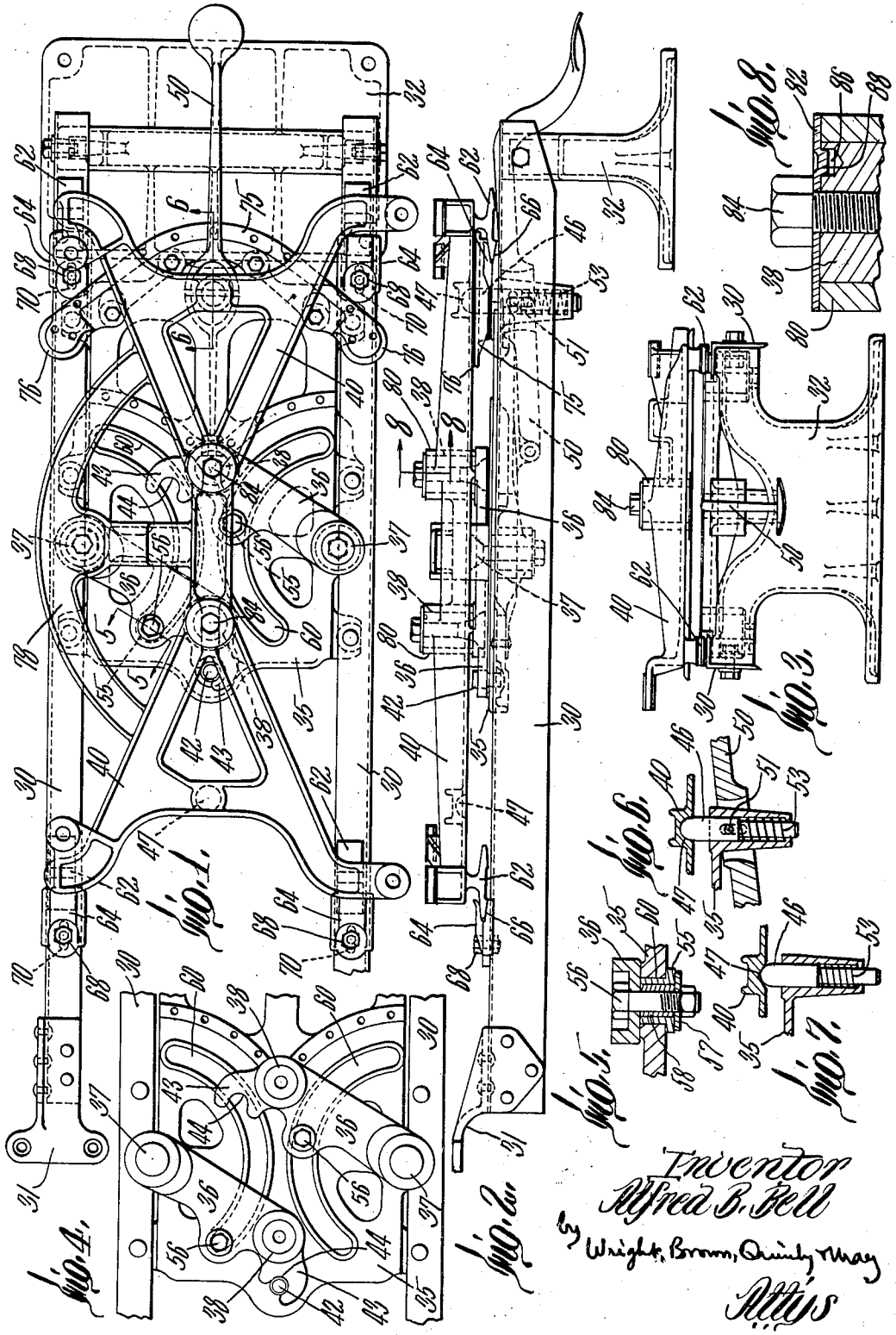


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

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REVERSIBLE SEAT-BACK BASE

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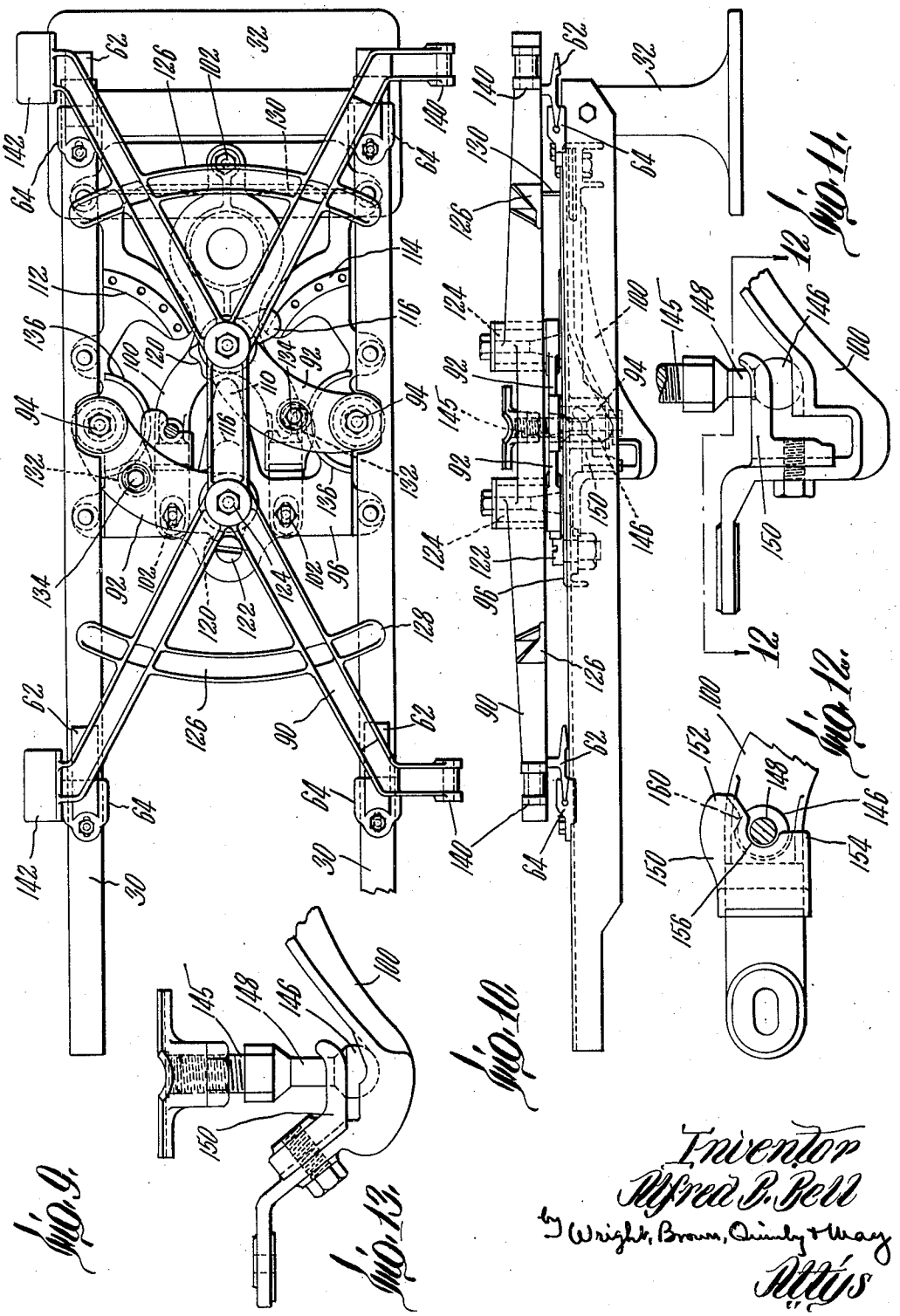


Fig. 9.

Fig. 10

Fig. 11.

Fig. 12.

Fig. 13.

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REVERSIBLE SEAT-BACK BASE

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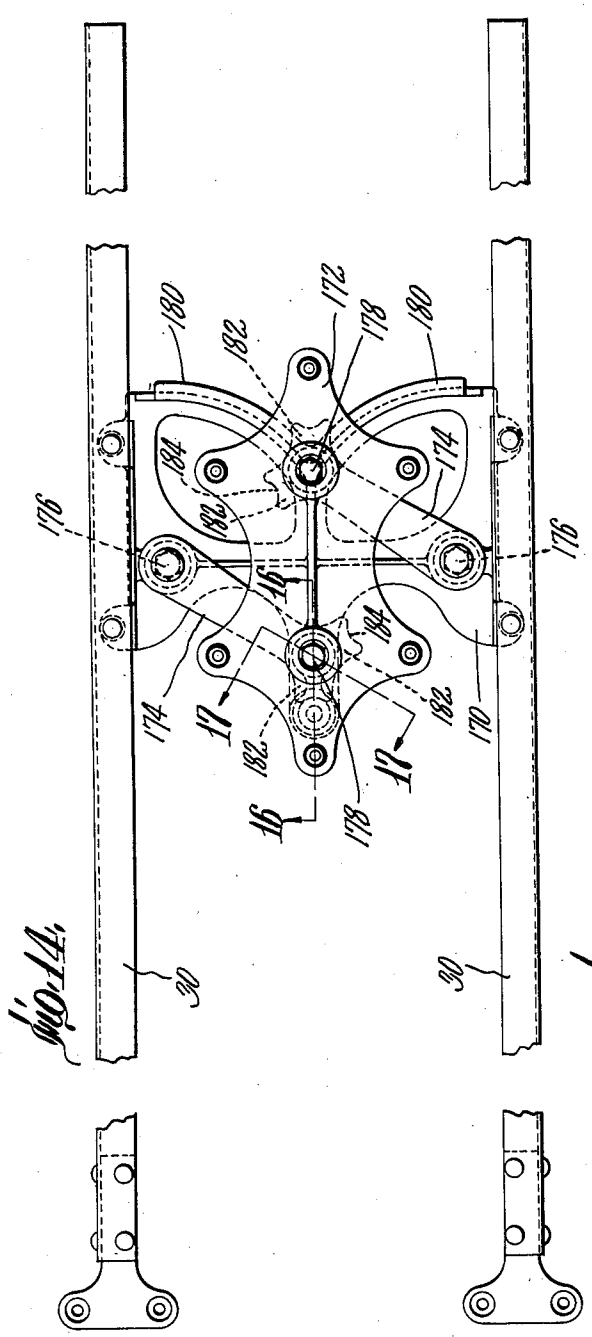


Fig. 14.

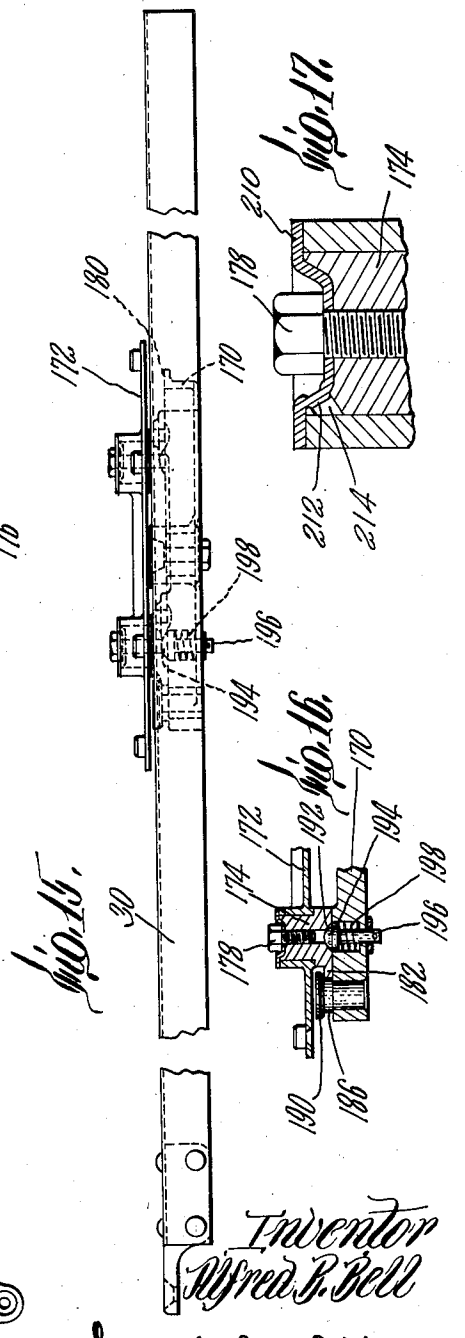


Fig. 15.

Fig. 17.

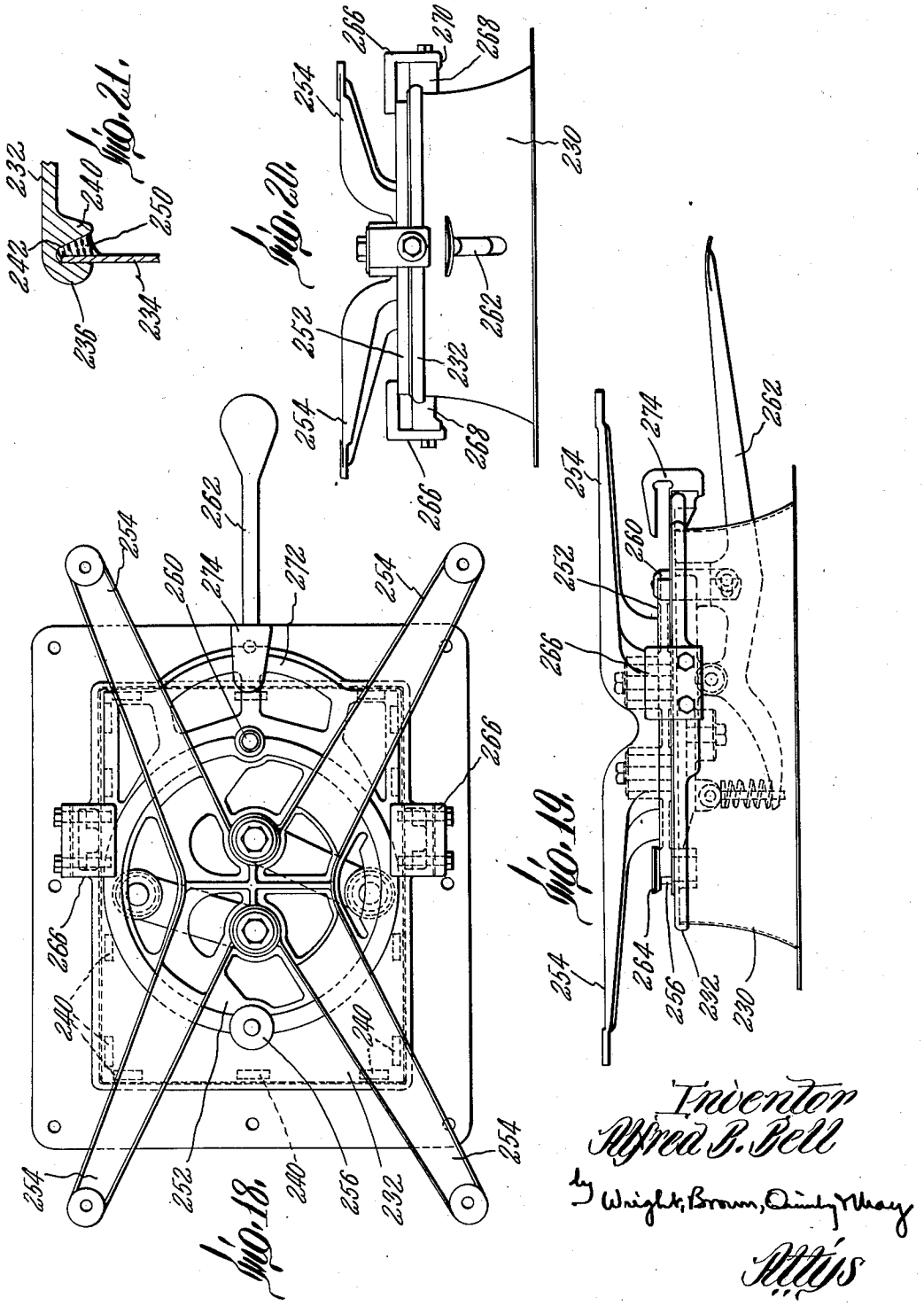
Fig. 16.

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REVERSIBLE SEAT-BACK BASE

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UNITED STATES PATENT OFFICE

2,154,600

REVERSIBLE SEAT-BACK BASE

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Application November 1, 1935, Serial No. 47,820

10 Claims. (Cl. 155—96)

This invention relates to reversible seat bases adapted for use in vehicles such as railway cars, busses and the like, wherein the seat can be rotated through an angle of about 180° about a vertical axis so as to face one or the other end of the vehicle. It is desirable in a seat base of this general type, that the mechanism be capable of economical construction involving lightness of weight and mechanical strength, the latter being necessary to withstand the jolts and lurches of a vehicle in which the base is mounted. The movements of the passengers occupying the seats, resulting from such jolts and lurches, impose stresses of considerable magnitude on the base structure, so that, unless the base is constructed to withstand successfully such stresses, it is liable to go to pieces or to get out of order in a short time.

It is an object of the present invention to provide a reversible car-seat base of the type referred to, this base being of light construction but being strong and rigid by reason of the arrangement and interengagement of the parts thereof. It is a further object of the invention to provide a car-seat base such that the seat will be firmly secured in either of its positions for use, and, when in such positions, will be angularly alined with the stationary portion of the base.

The invention relates more particularly to the type of car-seat-base mechanism which includes a stationary pedestal or frame over which a seat-supporting frame is movable in a horizontal plane, the two frames being connected by a pair of links which are in the form of cranks and which control the reversing movement of the movable frame. These links are pivoted at one end to the fixed frame and at the other end to the movable frame, the pivot points being so arranged that, during the initial portion of a reversing movement of the seat from one of its positions for use, the seat moves endwise away from the wall of the vehicle, and, during the final portion of the reversing movement, the seat moves endwise toward the vehicle wall until it reaches its other position for use.

Ordinarily, when a seat is reversed from one position to another, it is unoccupied, so that there is then not so much need for strong structure to stabilize the seat as there is when the seat is in either of its positions for use, particularly if the seat and its supporting frame are relatively light. However, a certain amount of stabilization is necessary even when the seat is being reversed, since it is then subjected at times to considerable stresses arising from the effort exerted on the seat itself to impart reversing movement thereto. According to the invention, stabilizing mechanism adequate for the reversing movement of the seat is provided, this mechanism being augmented by additional stabilizing mechanism effective when the seat is in either of its positions for use.

A further object of the invention is to provide, in combination with the link type of reversing mechanism hereinbefore referred to, an improved seat-tilting mechanism including a vertical plunger which rides on a fixed cam track, the plunger being moved laterally by the reversing movement of the seat-supporting frame, and being moved vertically to tilt the seat by the contour of the cam track on which it rides. The cam track and plunger are so arranged as not to interfere with the movement of the connecting links by which the reversing movement of the movable frame is controlled.

Various other improvements hereinafter more particularly described are included in the invention illustrated on the drawings of which

Figure 1 is a plan view of a reversible seat base embodying the invention.

Figure 2 is a side elevation of the same.

Figure 3 is an end elevation of the same.

Figure 4 is a fragmentary plan view of the stationary frame shown in Figure 1, together with the links mounted thereon.

Figure 5 is a section on the line **5—5** of Figure 1.

Figure 6 is a section on the line **6—6** of Figure 1.

Figure 7 is a sectional view similar to Figure 6, showing a modified form of structure.

Figure 8 is a section on the line **8—8** of Figure 2.

Figure 9 is a plan view of a modified form of car-seat base.

Figure 10 is a side elevation of the same.

Figure 11 is a fragmentary elevation of a portion of the mechanism shown in Figure 10, on a larger scale.

Figure 12 is a section taken on the line **12—12** of Figure 11.

Figure 13 is similar to Figure 11 but shows a modified form of structure.

Figure 14 is a plan view of a further modified form of car-seat base.

Figure 15 is a side elevation of the same.

Figure 16 is a section on the line **16—16** of Figure 14.

Figure 17 is a section on the line **17—17** of Figure 14.

Figure 18 is a plan view of another form of car-seat base.

Figure 19 is a side elevation of the same.

Figure 20 is an end elevation of the same.

Figure 21 is a fragmentary section of the stationary portion of the base showing an improved method of welding.

The car-seat base, illustrated in Figures 1, 2 and 3, includes a stationary frame which, as shown, may consist of a pair of horizontal angle irons or rails 30 having suitable brackets 31 at one end thereof to be secured to a shelf or bracket on the wall of the vehicle. The other ends of the rails 30 may be supported by a suitable pedestal 32. Such structure affords stowage space beneath the seats for parcels, suit cases, and the like. It is evident that, if desired, a central pedestal may be substituted for the wall brackets 31 and the end pedestal 32. Secured between the central portions of the rails 30 is a horizontal connecting plate 35, as much as possible of this plate being preferably cut away to economize in weight and materials. Pivotally mounted on the plate 35 are a pair of links 36, these links being preferably in the form of cranks having a crankshaft portion 37 journaled in the plate 35 to rock on a vertical axis, each link also having a crank-pin portion 38 at its opposite end journaled in a seat-supporting frame 40 which is movable in a horizontal plane above the stationary frame of the rails 30 and connecting plate 35. The fixed pivot axes of the links 36 are arranged, as indicated in Figure 1, in a front-to-rear line intersecting the rails 30. When the seat is in either position for use, the movable pivot axes, where the crank-pin portions of the links are journaled in the movable frame 40, are arranged in a line perpendicular to the line of centers of the fixed pivot. The links 36 control the reversing movement of the frame 40 and of the seat carried thereby. Thus, when the seat is reversed from one position for use to the reverse position, the seat and frame 40 move initially endwise toward the aisle and continue such motion during the early part of the turning movement of the frame 40. When the frame has swung past a 90° angle of rotation, a reverse movement toward the wall of the vehicle begins, the last portion of the movement of the frame 40 being directly toward the wall as it reaches its ultimate position of rest. The location of the frame 40 in its ultimate positions of rest (i. e. in the positions in which the seat is held for use) may be mechanically determined in various ways. As illustrated in Figure 1, a stop element 42 may be mounted on the plate 35, this element being shown in the form of a fixed pin which projects upward from the plate. This stop element is adapted to be engaged by an extension 43 on each link 36, the extension preferably having an arcuate recess 44 to fit against the cylindrical pin and to prevent any longitudinal movement of the link which might be permitted by a worn bearing at its fixed pivot. When the extension 43 of one of the links 36 is against the stop element 42, the frame 40 may be locked in such position by suitable locking mechanism such as a vertical plunger 46 which is slidably mounted on a portion of the fixed plate 35. The upper end of the plunger is adapted to enter a suitable recess 47 in the frame 40, two such recesses being provided for alternative cooperation with the plunger 46 when the frame 40 is at one or the other extreme position. When it is desired to reverse the seat, the locking plunger 46 must be retracted from the recess 47 in which it is engaged. This may conveniently be done by a treadle 50 having attached thereto a pin 51 mounted in the plunger 46 and passing through slots in the treadle 50. Depression of the treadle 50 pushes the plunger down against a suitable spring 53 so as to release the frame 40 for reversing movement. The reversing movement of the frame 40 swings away from the stock member 42 the link 36 of which is in contact therewith, and eventually brings into contact with the stop 42 the extension 43 of the other link 36. During the reversing movement of the frame, the upper end of the plunger slides against the lower face of some portion of the frame 40 so that the treadle is maintained in its depressed position, thus permitting the foot-rests (not shown) to clear the treadle when they swing past. When the opposite recess 47 moves into registry with the plunger 46, the plunger springs up into locking position if the operator's foot has in the meantime been taken off the treadle.

If desired, the treadle 50 may be dispensed with. In such case, the plunger 46 is made to engage in a shallow recess 47, as shown in Figure 7, from which it can ride out when the seat frame 40 is given a sufficient push or pull. The upper end of the plunger then slides against the lower face of the frame 40 until it enters the opposite recess 47 when the reversing movement of the seat has been completed. The path followed by the plunger 46 on the under face of the frame 40 may be smooth by machining or grinding portions of the under face of the frame traversed by the plunger.

During the reversing movement of the frame 40, various stresses are apt to be imposed of the links 36. To reinforce the links against such stresses, hold-down elements are provided thereon. As shown, these elements may consist of ferrules 55 rotatably carried by bolts 56 each of which also carries a washer 57 under the lower end of the ferrule 55 and a spring sleeve 58 between the washer and the under face of the link 36. Each bolt and sleeve extends downward from an intermediate point of a link 36 through an arcuate slot 60 in the plate 35. The slots 60 are concentric with the fixed pivot axes of the links so that the bolts 56 are adapted to travel in the slots 60 as the links 36 rock about their fixed pivots. The ferrules 55, as indicated in Figure 5, engage under the edges of the slots and thus act with the washers 57 as hold-down members to protect the links 36 against some of the stresses imposed thereon during reversing movement of the frame 40.

In order to stabilize the frame 40 against any looseness or wabbling when the seat is in either position for use, wedge members 62 may be secured to the four corners of the frame 40 to cooperate with stop elements 64 mounted on the rails 30. Each stop element 64 is provided with a tapered opening 66 adapted to receive one end portion of a wedge element 62. The stop elements 64 are preferably secured to the rails 30 by bolts 68 which pass through slots 70 in the rails 30 so that each of the stop elements 64 may be adjusted along its rail 30. Thus, in setting up the seat and seat base, the frame 40 may be moved into one of its extreme positions wherein one of the links 36 is in contact with the stop element 42. Stop elements 64 are then adjusted so as to be in closely fitted engagement with respective wedge elements 62. Thus the seat is effectively and rigidly anchored directly to the rails 30 and all looseness or wabbling, while the seat is in use, is entirely avoided. In order to assist the hold-down elements on the links 36 in stabilizing the seat during reversing movement thereof, a guide rail 75 may be mounted on the rails 30. As

shown, this guide rail is arcuate in shape and is adapted to serve as a track on which the frame 40 may slide as it rotates. The ends of the guide rail 75 may be beveled as at 76 so as to guide an approaching portion of the frame 40 up onto the upper surface of the rail. For lightness and strength, the frame 40 may be made in the general form of an X, as shown in Figure 1, the seat being secured to the extremities of the X. To make the seat available for occupancy when swung half-way between its limiting positions, the hold-down elements on the links 36 may be reinforced by an arcuate portion 78 forming a part of the frame 40 and adapted to rest on the guide rail 75 when the seat has been swung 90° from either of its limiting positions.

In order to provide strong connections between the links and the frames which they connect, the frames may be made with cylindrical bearing portions in which are journaled the crank-shaft and crank-pin portions of the links. The links are secured in place by washers or plates bolted to the ends of the crank-shaft and crank-pin portions thereof. Since the links oscillate in opposite directions during the successive reversing movements of the seat, the bolts are liable to work loose unless suitable provision is made to prevent such working. As illustrated in Figure 8, the crank-pin portion 38 of the link 36 is journaled in a bearing portion 80 of the frame 40. In order to hold the frame 40 on the links 36, a washer 82 is secured as by a bolt 84 to the end of the crank-pin portion 38 of the link. The latter is provided with a small recess 86 in its end face which receives a lug 88 struck up from the washer or plate 82. The lug 88, engaging in the recess 86, prevents rotation of the plate 82 relative to the crank-pin portion 38 of the link so that there is no tendency on the part of the plate 82 to work the bolt 84 loose.

A somewhat modified form of the invention is illustrated in Figures 9 to 13. This form of seat base may be provided with a stationary frame consisting of horizontal rails 30 supported at one end on the wall of the vehicle and at the aisle end by a pedestal 32. A seat-supporting frame 90 is movable in a horizontal plane between two limiting positions, the movable frame being connected to the stationary frame by a pair of links 92. The links 92 are preferably of the crank type as are the links 36 shown in Figure 1, but are preferably arcuate in shape to avoid interference with a seat-tilting plunger. The links 92 are rockable about vertical axes at pivot points 94, the crank-shaft portions of the links being journaled in suitable bearings on a fixed plate 96 which is secured to the rails 30 and extends between them. The plate 96 is of irregular shape, the central portion being largely cut away to accommodate a cam-track member 100. This member is secured to the plate 96 as by bolts 102 which extend through slots in the plate so as to permit adjustment of the cam-track member 100 in a direction parallel to the rails 30. The cut-away portions of the plate 96 leave three horizontal horns or projections 110, 112 and 114 which project toward each other and are arranged to support the links 92 for sliding contact thereon. In order that the links 92 may engage one or the other of the projections 112 or 114 before moving clear of the projections 110, each link may be provided with a horizontally projecting tongue 116, the tongues 116 being adjacent to the free ends of the links. Also at the free ends of the links are suitable projections 120 which are notched for engagement with a stop element 122 mounted on the plate 96 so as to determine accurately the limiting positions of the frame 90. The crank-pin portions of the links 92 are pivoted as at 124 to the frame 90, the arrangement of the pivots being preferably similar to the arrangement of the pivots in the seat base illustrated in Figure 1. The movable frame 90 may be in the form of an X, a pair of reinforcing elements 126 being provided to ride on a guide rail 130 secured across the rails 30 near the aisle end of the base. Between the ends of each link 92 is mounted a hold-down element consisting of a ferrule 132 mounted on a bolt 134 which projects through the link 92. The ferrule engages under an arcuate edge portion 136 of the plate 96, these edge portions being concentric with the pivot axes 94.

When the frame 90 is in either limiting position, it is stabilized by the engagement of wedging elements 62, mounted at the four extreme ends of the frame, with adjustable hold-down elements 64 secured to the rails 30.

The frame 90 is adapted to carry a seat which is preferably hinged thereto as at 140, the hinge axis being adjacent to the forward edge of the seat. The rear edge of the seat is adapted to rest on a pair of brackets 142 secured to or integral with the frame 90. In order to tilt the seat forward as it is reversed from one position to the other, suitable mechanism may be provided including a vertical movable plunger 145 of adjustable length. This plunger may be connected to a tiltable seat (not shown) at some point rearward of the axis of the hinges 140, in a manner well known in the art. As shown, the lower end of the plunger 145 is in the form of a ball 146 above which is a reduced neck 148. The ball 146 is adapted to ride on the cam track 100, so that, when the plunger 145 is moved laterally by reversing movement of the seat to which it is attached, the ball 146 slides along the cam track of the member 100. As indicated in Figure 9, the track 100 is shaped in such a manner that the plunger 145 will follow along the center line thereof as the seat swings through its reversing movement from one limiting position to the other. As indicated in Figure 10, the contour of the track is such that the end portions are sloping while the intermediate portion is substantially level. Thus during the initial portion of the reversing movement of the seat from either of its positions, the ball 146 of the plunger rides up an inclined portion of the cam track. This causes the plunger 145 to rise, tilting the seat so that it reaches its maximum angle of tilt before the reversing movement has progressed very far. The seat is then held in such maximum angle of tilt until the final portion of its reversing movement is reached, whereupon the ball 146 slides down an inclined portion of the track 100 to the position indicated in Figure 11. As therein shown, the ball 146 rests against an inclined portion of the track 100 when the seat is in either limiting position. Since any upward movement of the plunger 145 must be against the weight of the seat itself and of any occupants thereof, the ball 146 acts to lock the seat against any reversing movement owing to the fact that the ball rests against the sloping surface of the track 100. When the seat base is initially assembled, the track member 100 is adjusted in a direction parallel to the rails 30 so that the ball 146 will be in definite engagement with a sloping portion of the cam track 100 when the seat is in either of its limiting positions. It is desirable to lock the seat against

tilting when it is in either of its positions for use. To this end, a claw-shaped locking member 150 may be mounted on the track member 100 at a point beyond the end of the cam track itself. This member, as indicated in Figure 12, may be provided with a long finger 152 and a shorter finger 154 between which is a notch 156 adapted to receive the neck 148 of the plunger 145. The edge of the notch 156 may be beveled to fit the upper surface of the ball 146 for snug engagement therewith. The bevel on the inner edge of the finger 152 may also be provided with a projection 160 which extends slightly into the path of movement of the upper portion of the ball 146 so that the plunger is slightly sprung as the ball passes the projection 160. Thus the plunger snaps into and out of its limiting positions against one or the other of the claw members 150. This serves to hold the plunger tightly when the seat is in either position for use. Figure 13 illustrates a slightly different arrangement of the bracket end portion of the cam-track member and of the claw member which is secured thereto.

Figures 14 and 15 illustrate a highly simplified form of reversible seat base. As shown, this form of seat base comprises a stationary frame including a pair of rails 30 to which are secured a connecting plate 170. A seat-supporting plate 172 is connected to the stationary plate 170 as by a pair of connecting links 174 which are pivoted as at 176 to the plate 170 and are pivoted as at 178 to the movable plate 172. The stationary plate 170 is provided with elevated track portions 180 adapted to support the free end portions of the links 174 which slide thereon. The links 174 and their pivots may be arranged in a manner similar to the links shown in Figures 1 and 9. Each of the links 174 is provided with a pair of projections 182 at the free end thereof, each projection having an arcuate recess 184 to receive a stop pin 186 which is mounted on the stationary plate 170. Only one of the projections 182 on each link is active, the other projection being formed thereon, if desired, so that the links may be interchangeable with each other, thus avoiding "rights" and "lefts". As indicated in Figure 16, the stop element 186 may be provided with a flange 190 under which the projections 182 engage so that the flange 190 acts on the adjacent projection 182 as a hold-down element to stabilize the seat. In order to maintain the seat releasably in one or the other of its limiting positions, each link 174 may be provided with a hollow 192 in its under face near the free end thereof. This hollow is adapted to receive the rounded upper end portion 194 of a resilient detent 196 which is mounted in the plate 170 and is pressed upward as by a spring 198. A sufficient pull on the seat will force the detent element 196 downward so as to release the seat from reversing movement. When the seat reaches either of its limiting positions, one or the other of the links 174 will move over the detent element 196 which will thereupon enter the recess 192 and hold the seat in place. Figure 17 illustrates the manner in which the movable plate 172 may be secured to the crank-pin portions of the links 174, the structure being similar to that illustrated in Figure 8 except that the end of the crank-pin portion of each link is hollowed to receive a dished washer or plate 210 so that the heads of the bolts will not project so far above the bearing portions of the plate 172. As shown, the washer 210 is locked to the link stud 174 by a lug 212 thereon which engages in a recess 214 in the link stud so as to keep the bolt 178 from working loose.

Figures 18, 19 and 20 illustrate a seat base having a central pedestal 230 of rectangular shape. This pedestal consists of a top plate 232 which is preferably a malleable casting, and side walls 234 which are preferably of rolled sheet steel and are welded to the top plate as follows. The top plate 232 is provided with a peripheral beading or flange 236. Spaced inward from this beading are a number of lugs 240 forming with the beading 236 short channels 242. If preferred, the lugs 240 may be in the form of continuous ridges. The spaced lugs, however, are preferred on account of economy in weight and material. The channel 242, as indicated in Figure 21, is considerably wider than the thickness of the sheet-metal side walls 234. In order to secure the side walls 234 to the top plate 232, the upper edges of the side walls are inserted in the channels 242 in such a manner that the side walls are held against the inner face of the beading 236. This leaves considerable clearance between the inner surface of the side walls and the lugs 240. Welding metal is then welded into this clearance so as to fill the same as indicated at 250. If arc-welding be employed, the arc may be made between the welding wire and the lug 240. If properly done, this avoids over-heating of the relatively thin sheet metal 234 or warping of top casting so that a firm weld between the top and sheet metal side walls is thus obtainable.

The top surface of the top plate 232 is preferably plane so that a movable seat-supporting frame can be slidably supported thereon. As shown, the movable frame 252 consists of a disk-like portion directly resting on the top plate 232, a plurality of seat-supporting arms 254 radiating from the disk. The periphery of the disk is provided with a pair of diametrical opposed notches, one of which receives a fixed stop element 256 and the other of which receives a vertically movable plunger 260. This plunger may be retracted by a suitable treadle 262 to release the movable frame 252 and to permit the seat carried thereby to be reversed. The stop element and plunger, fitting snugly in the notches in the periphery of the disk, hold the disk firmly against any movement on the top plate 232 when the seat is in either position for use and also ensure accurate angular alinement of the seat frame with the base. The stop element 256 may be provided with a flange 264 adapted to overlap a portion of the disk so as to act as a hold-down element when the seat is in either of its limiting positions for use. Additional hold-down elements 266 may be mounted at the side edges of the base, these hold-down members being bolted or otherwise attached to laterally projecting lugs 268 so as to permit movement of the movable frame 252 in its own plane during reversing movement of the seat. The hold-down elements 266 may each be provided with a flange 270 adapted to engage under the edge of the corresponding lug 268 so as to prevent the hold-down elements 266 from becoming loose and permitting wabbling of the movable frame 252 on the top plate 232. The top plate may be provided with an extended portion 272 projecting toward the aisle so as to support a peripheral portion of the movable disk when the seat is half-way between its reversed positions. Secured to this projecting portion 272 of the top plate is a hold-down member 274 which is adapted to cooperate with the hold-down members 266 so as to prevent wabbling of the movable frame

252 when it is half-way between its limiting positions. Thus the seat may be occupied, if desired, when it is in position facing the side wall of the vehicle.

The foregoing description of certain embodiments of the invention is by way of illustration and not limitation, and it is to be understood that the scope of the invention is to be limited only as defined in the following claims.

I claim:

1. A reversible car-seat base comprising a stationary frame including a horizontal member having two arcuate edge portions in a common plane, a movable seat-supporting frame, a pair of links each pivoted at one end to the stationary frame at a point concentric with one of said arcuate edges and at the other end to the movable frame, a hold-down element on each said link between the ends thereof, each said hold-down element having a portion engaging under one of said arcuate edges.

2. A reversible car-seat base comprising a stationary frame including a horizontal member having a pair of arcuate slots therein, a movable seat-supporting frame slidable on said stationary frame, a pair of links connecting said frames, each said link having one end pivoted to the stationary frame at a point concentric with one of said slots and its other end pivoted to said movable frame, and a hold-down element on each said link between the ends thereof projecting down through one of said slots and engaging under the side edges thereof.

3. A reversible car-seat base comprising a stationary frame, a movable frame slidable thereon, a pair of links each pivoted at one end to said stationary frame and at the other end to said movable frame, a fixed stop element mounted on said stationary frame, a notched extension on each link adapted to engage said stop element when the seat carried by the movable frame is in one or the other of its reversed positions, and means for locking said movable frame against movement when either said notched extension is in engagement with said fixed stop element.

4. A reversible car-seat base comprising a stationary frame having a pair of fixed pivot points arranged in a front-to-rear center line of the base, said frame including a horizontal member with a pair of arcuate slots concentric with said fixed pivot points, a stop element on said horizontal member equidistantly spaced from said fixed pivot points, a seat-supporting frame movable in a horizontal plane above said stationary frame and provided with a pair of spaced pivot points having their line of centers perpendicular to the line of centers of the fixed pivots when the seat is in either of its positions for use, a pair of links pivotally connected to said stationary frame at said fixed pivot points and to said seat-supporting frame at its pivot points, hold-down elements on said links projecting through said slots and engaging under the edges thereof, and notched extensions on said links adapted to engage said stop element when the seat is in either position for use.

5. A reversible car-seat base comprising a stationary frame, a movable seat-supporting frame, a pair of connecting links each pivoted at one end to said stationary frame to rock thereon in a horizontal plane and at the other end to said movable frame, a stop element on said stationary frame, an extension on said link adapted to engage said stop element when the seat is in one or the other of its positions for use, said stop element having a portion overlapping a portion of said link extension in engagement therewith so as to act as a hold-down element, and means releasably holding said movable frame against movement when either link extension is in engagement with said stop element.

6. A reversible car-seat base comprising a stationary frame, a movable seat-supporting frame, a pair of connecting links each pivoted at one end to said stationary frame to rock thereon in a horizontal plane and at the other end to said movable frame, a stop element mounted on said stationary frame and engageable alternatively by said links to define limits of movement of said movable frame, said stop element having a portion overlapping a portion of the link in contact therewith, and means on said stationary frame engaging and releasably locking against movement the link in contact with said stop element.

7. A reversible car-seat base comprising a stationary frame, a seat-supporting frame movable on said stationary frame in a horizontal plane, a pair of links connecting said frames, each link being pivoted to the stationary frame at one end and to the movable frame at the other end, a fixed stop element on said stationary frame engaged by said movable frame when the seat is in either of its positions for use, a locking element movable into and out of the path of movement of the movable frame when the seat is in either position for use, said movable frame having a pair of lateral recesses arranged to receive said stop element and locking element when the seat is in a position for use.

8. A reversible car-seat base comprising a stationary frame, a seat-supporting frame movable in a horizontal plane on said stationary frame to reverse the seat carried thereby, a pair of links connecting said frames, each link being pivoted at one end to the stationary frame and at the other end to the movable frame, a track member secured to said stationary frame having a cam track on the upper surface thereof, and a seat-tilting cam follower laterally movable along said cam track by movement of said movable frame and vertically movable by the contour of the cam track.

9. A reversible car-seat base comprising a stationary frame, a seat-supporting frame movable in a horizontal plane over said stationary frame to reverse the seat carried thereby, means operatively connecting said frames to determine the reversing movements of said movable frame, a track member adjustably secured to said stationary frame having a cam track on the upper surface thereof, a vertically disposed plunger movable laterally along said track by movement of said movable frame and vertically movable by the contour of the track to tilt a seat hinged to said movable frame, said plunger having its lower extremity in the shape of a ball and a reduced connecting neck, and means for locking said plunger against vertical movement when the movable frame reaches either limit of its movement, said locking means including a claw adjustably fixed above said track to receive the reduced neck of the plunger, said claw having a portion projecting slightly into the path of said neck whereby said plunger is sprung into and out of its locked engagement with said claw.

10. A reversible car-seat base comprising a stationary frame including a pair of parallel rails and a connecting member secured between said rails, said connecting member having three spaced bearing elements projecting toward each

other and having upper bearing surfaces in a common horizontal plane, said connecting member also having a pair of fixed pivot points and arcuate edge portions concentric with said points, a cam-track member secured to said connecting member and disposed in the spaces between said three bearing elements, a pair of links pivotally attached to said frame at said pivot points for movement in a horizontal plane, the free end portions of said links being at all times directly supported by some portion of said connecting member, a movable frame member pivotally attached to spaced points to the free ends of said links whereby the reversing movement of said movable frame is controlled by said links, a fixed stop on said stationary frame engageable by one or the other of said links when the movable frame reaches a limit of its movement, a hold-down element carried by each said link and engaging under one of said arcuate edge portions of said connecting member, a vertical plunger laterally movable along said cam track by movement of said movable frame and vertically movable by the contour of the track to tilt a seat hinged to the movable frame, and means engageable by said plunger when the movable frame reaches either limit of its movement to lock said plunger against vertical movement.

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