July 6, 1926.

1,591,529

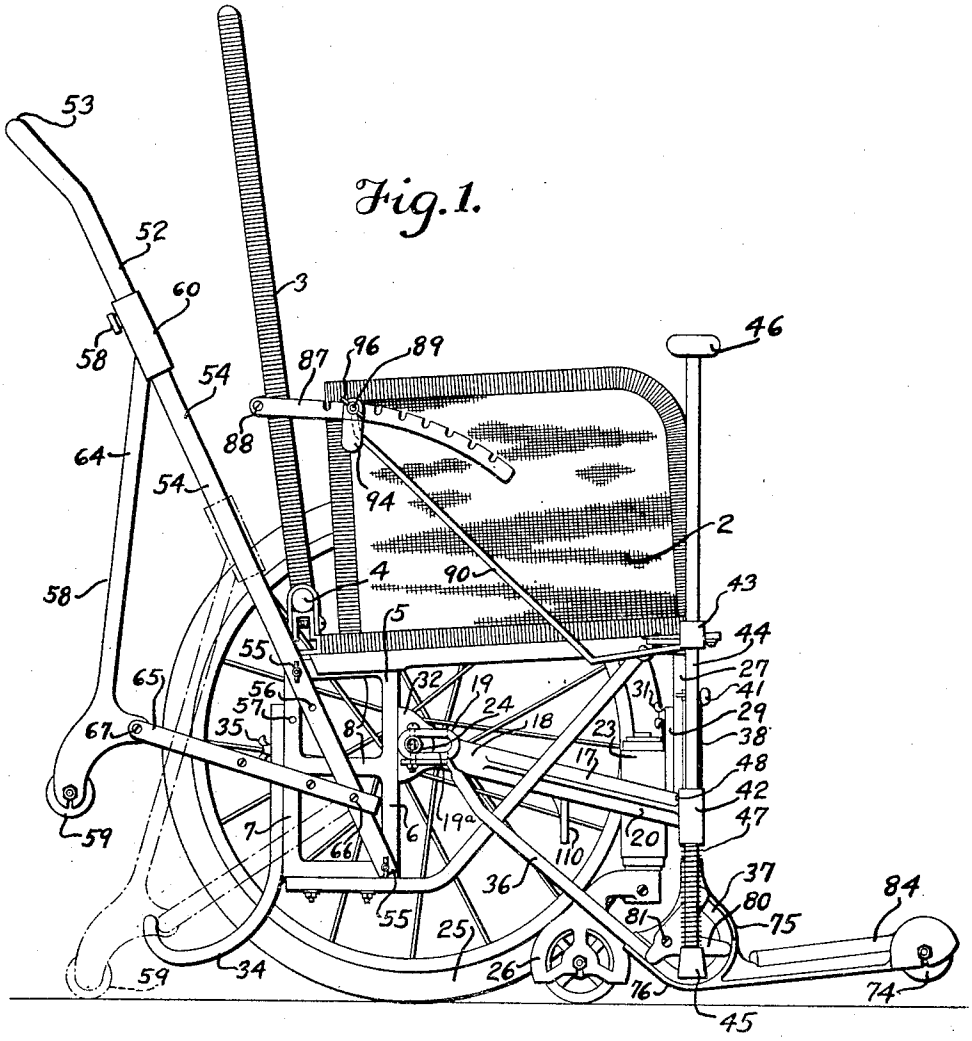
F. S. GUERBER

INVALID CHAIR

Filed May 12, 1922

4 Sheets-Sheet 1

Fig. 1.



INVENTOR

BY F. S. Guerber

ATTORNEY

July 6, 1926. 1,591,529

F. S. GUERBER

INVALID CHAIR

Filed May 12, 1922 4 Sheets-Sheet 2

Fig. 2.

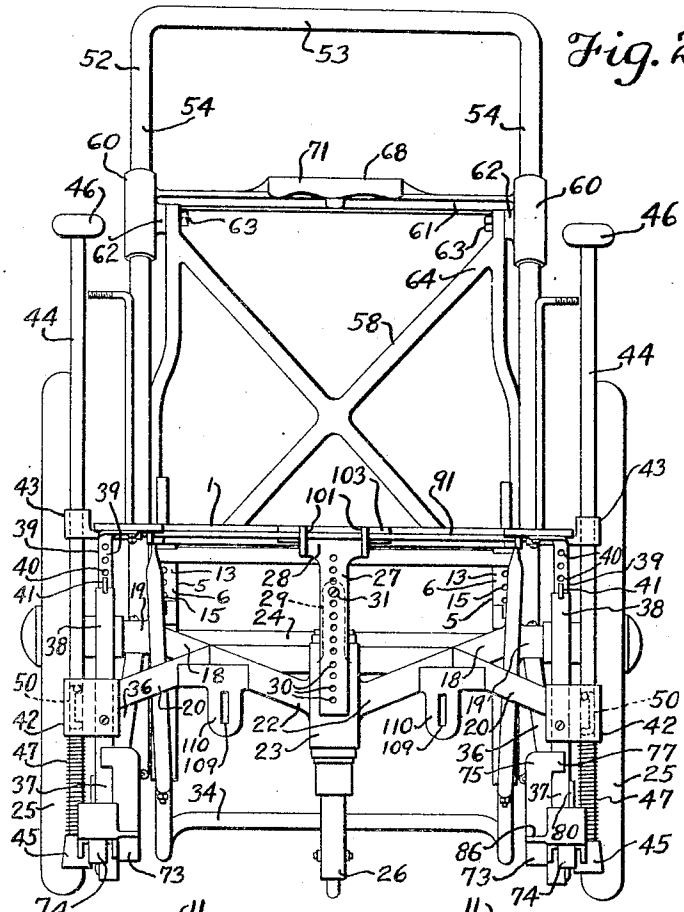


Fig. 4.

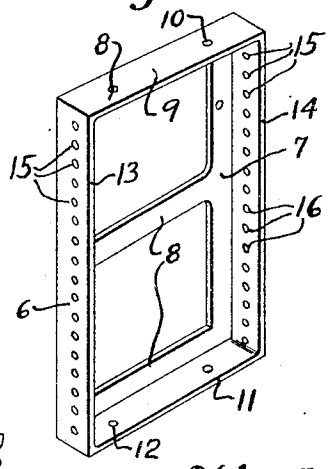


Fig. 5.

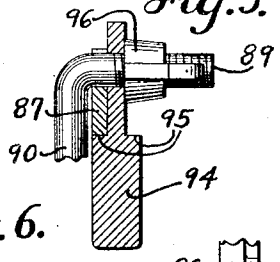


Fig. 3.

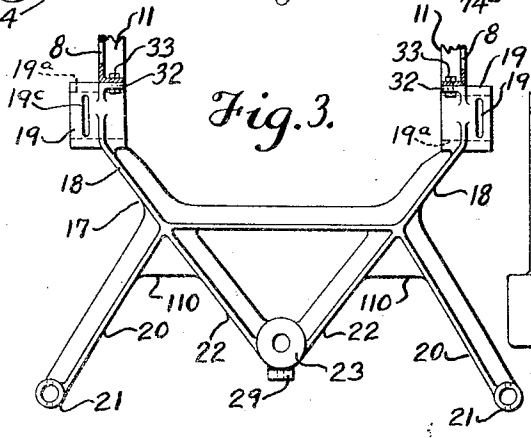
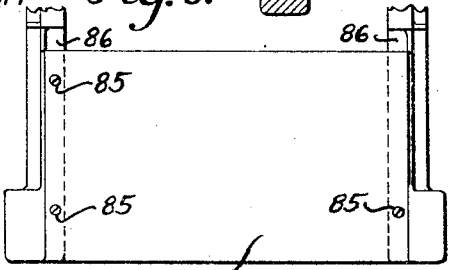


Fig. 6.



F. S. Guerber
INVENTOR

BY J. Landenberg
ATTORNEY

July 6, 1926. 1,591,529

F. S. GUERBER

INVALID CHAIR

Filed May 12, 1922 4 Sheets-Sheet 3

Fig. 7.

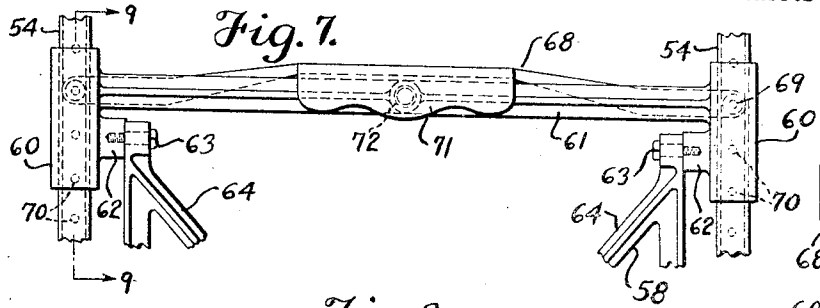
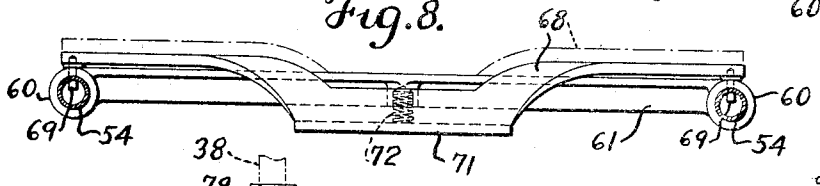


Fig. 8.



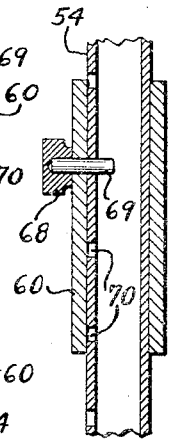


Fig. 9.

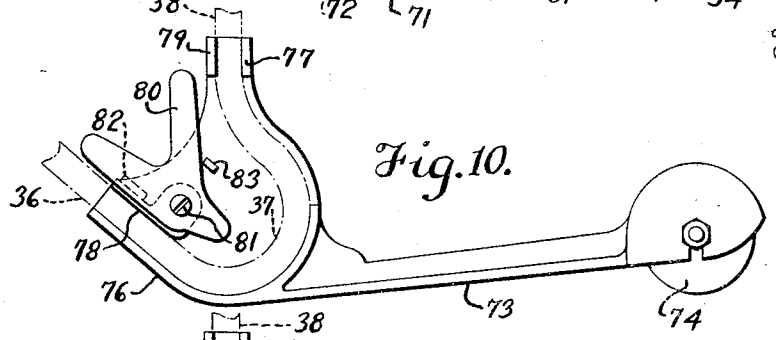


Fig. 10.

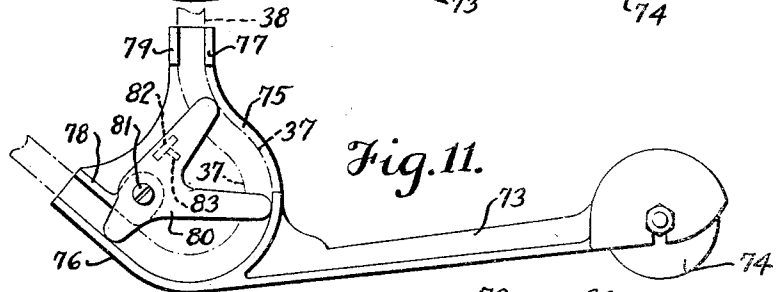


Fig. 11.

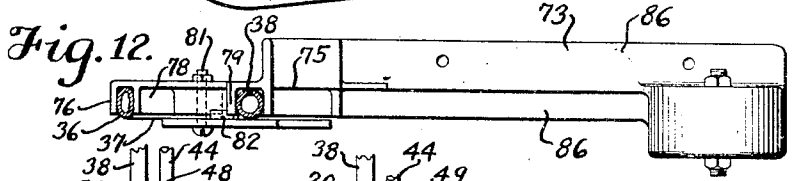


Fig. 12.

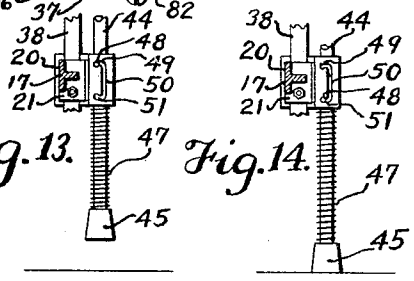


Fig. 13.

Fig. 14.

F. S. Guerber
INVENTOR
BY
ATTORNEY

July 6, 1926. 1,591,529

F. S. GUERBER

INVALID CHAIR

Filed May 12, 1922 4 Sheets-Sheet 4

Fig.15.

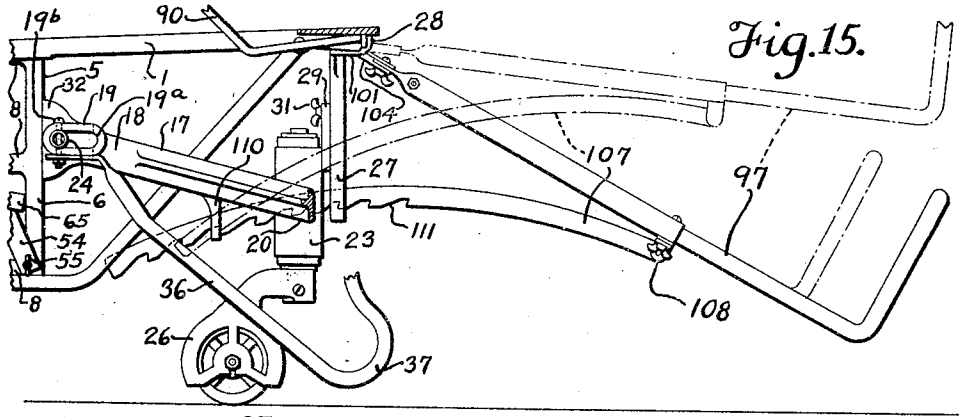


Fig.16.

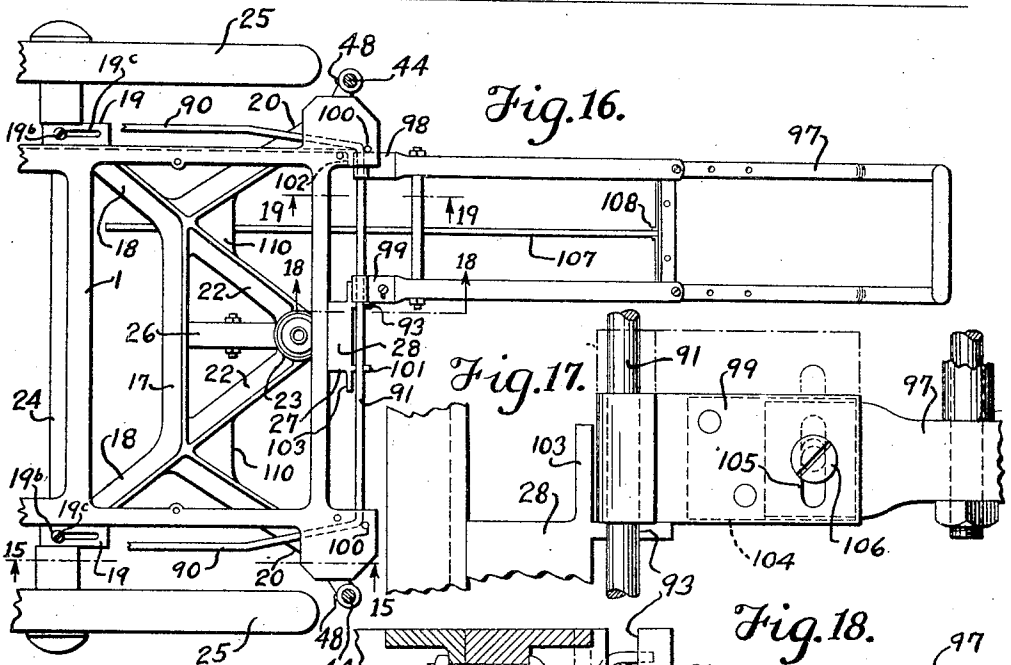


Fig.17.

Fig.18.

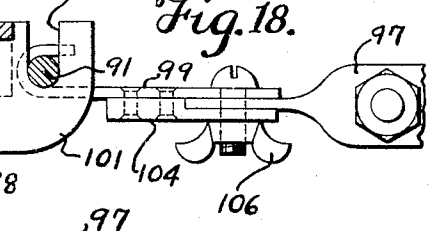
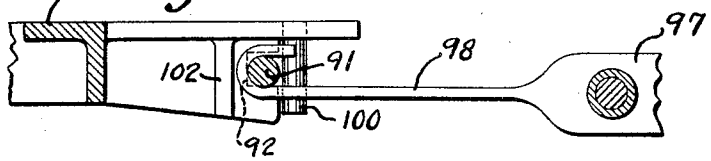


Fig.19.



F. S. Guerber
INVENTOR

BY
ATTORNEY

Patented July 6, 1926. 1,591,529

UNITED STATES PATENT OFFICE.

FREDERICK S. GUERBER, OF WHITE PLAINS, NEW YORK; ROGER S. S. GUERBER EXECUTOR OF SAID FREDERICK S. GUERBER, DECEASED.

INVALID CHAIR.

Application filed May 12, 1922. Serial No. 560,275.

The invention relates to chairs, and more particularly to invalid chairs, and comprises certain novel features and improvements in the organization, its parts, combinations and attachments, planned for great lightness, strength and economy of construction, the maximum safety, convenience and comfort of the occupant and complete and facile adjustment therefor, the provision of means whereby movement of the chair can be at once stopped or prevented, the same provision affording means whereby the occupant can raise himself from and lower his weight into the chair, the ready convertibility of the chair from an occupant-propelled chair to one with an attendant pusher attachment and a foot-rest with wheel means to extend the length of the wheel-base to facilitate going up and down curbs and overcoming changes in level or slope, and vice versa, together with other matters, functions, and attachments which will appear. The invention comprehends a sectional construction including a chair unit and attachment units whereby with one standarized invalid chair structure a complete range of useful combinations and adaptations are possible, conferring upon the chair a universal character.

In the accompanying drawings forming a part hereof:

Fig. 1 is a side elevation of the chair, with the pusher and foot-rest attachments thereon, the wheeled strut of the pusher attachment being shown raised in full lines and depressed in broken lines;

Fig. 2 is a front elevation corresponding to Fig. 1, the chair basket and back being removed;

Fig. 3 is a plan view of the unit underframe;

Fig. 4 is an enlarged perspective view of one of the truss-pillar rear supports for the seat frame;

Fig. 5 is an enlarged sectional detail view of an adjustment lock for sustaining the back at different inclinations;

Fig. 6 is a plan view of the foot-rest, with the rear portions of its side members broken away;

Fig. 7 is a fragmentary front elevation of the pusher-attachment;

Fig. 8 is a sectional plan view thereof;

Fig. 9 is an enlarged longitudinal section on the line 9—9 of Fig. 7;

Fig. 10 is a side elevation of one of the foot-rest side members, indicating the bend of the cooperative strut in broken lines, and showing the side retainer in the unlocked position;

Fig. 11 is a similar view, showing the retainer in locked position;

Fig. 12 is a plan view of the same member, showing the limbs of the strut in cross-section;

Fig. 13 is a fragmentary sectional rear elevation showing one of the stabilizers, raised;

Fig. 14 is a similar view showing the stabilizer depressed;

Fig. 15 is a vertical longitudinal section through the forward part of the framework taken approximately on the line 15—15 of Fig. 16, a portion of the bent strut being broken away, showing particularly a leg-rest attachment illustrated in two positions of inclination adjustment in full and broken lines, respectively;

Fig. 16 is a plan view corresponding to Fig. 15;

Fig. 17 is an enlarged fragmentary plan showing the movable hook of the leg-rest in relation to a co-operative portion on the chair frame;

Fig. 18 is an enlarged vertical longitudinal sectional detail taken on the line 18—18 of Fig. 16; and

Fig. 19 is a similar view taken on the line 19—19 of the same view.

The numeral 1 designates a seat-frame, which might be the chair-bottom itself, but in the case of a wicker-basket 2 as illustrated is preferably part of the metal-framework, the basket being applied thereto. The basket has a back 3, bottom-pivoted at 4, so that it may be set at different inclinations.

The seat-frame is supported at the rear by a pair of laterally disposed truss-pillar supports 5, which take the place of the bar supports 15 shown in my prior Patent, No. 1,286,295, dated December 3, 1918, and have certain important advantages in respect to strength and the attachment and adjustment of various parts in such manner as to secure highly effective structural and functional relations, as will appear.

Each of these supports 5 (Fig. 4) preferably comprises an integral frame having spaced front and rear vertical members 6,

7 and cross-members 8. The top cross-member has a horizontal flange 9 provided with screw or bolt holes 10 whereby it is fastened to the bottom of the seat-frame 1; and the bottom cross-member has a similar flange 11 with holes 12. The front and rear members have vertical flanges 13, 14, both provided with vertical series of holes 15, 16, these members being adapted to receive parts in spaced relation fore and aft of the chair and to permit independent vertical adjustment thereof.

The part which is adjustably secured to the fronts of the supports 5 is a unit under-frame 17, generally similar to the characteristic under-frame disclosed in my prior patent. This frame performs several duties in the organization and is shown in its preferred spider form particularly in Fig. 3, where it will be seen that it comprises two rearwardly extending diverging arms 18 having horizontal hubs or sockets 19 at their ends, two forwardly extending diverging arms 20 having vertical hubs, sockets or places of attachment 21 at their ends, at the general forward corner regions of the framework; and forwardly converging members or arms 22 united at a central vertical hub 23. The hubs 19 receive an axle 24 of a pair of large carrying wheels 25, the axis of which is thus located well forward of the back of the chair and approximately under the center of gravity when a person is in the chair. A function of the rear part of the frame 17 is therefore to afford bearings or axial connections for the pair of carrying wheels. As seen in Figs. 1 and 3 the openings 19^a of the hubs 19 through which the axle passes are horizontally elongated, so that the axle can be set somewhat forward or rearward according to the build and weight of the person who is to occupy the chair. The axle is clamped at the desired adjustment by bolts 19^b which pass through holes in the axle and slots 19^c in the hub sockets. The central vertical forward hub or place of connection 23 carries the swivel bearing of a small caster pilot-wheel 26, which, together with the main, carrying wheels, form the normal wheel base of the chair. A vertically adjustable support 27 stands between the forward parts of the seat-frame and under-frame at the region of the pilot-wheel, this support being illustrated as formed by a bar projecting downward from a central bracket 28 fixed to the front of the seat-frame 1, and a limb 29 projecting upward from the hub 23, the limb having a single hole therein and the bar having a vertical series of holes 30, whereby the parts can be rigidly secured together at any desired vertical adjustment, by means of a bolt and thumb-nut 31. The relation of the hubs 21 will presently be described.

The rear extremities 32 of the arms 18 of the under-frame 17 are faced and extended to form suitable attachment feet abutting against the front flanges 13 of the pillars 5 and securable thereto at any desired relative height by bolts and nuts 33 (Fig. 3) passing through holes in the feet and selected holes of the series 15 of the pillar.

The rear vertical members 7 and their flanges 14 of the pillars receive a vertically adjustable back-stop 34, the function of which is to prevent the chair overturning rearwardly. The said back-stop comprises a bar or tube bent into general U form, the vertical upper portions of its limbs being applied against the backs of the pillar flanges 14 and securable thereto at any desirable height by bolts and nuts 35. The lower portions of the limbs are curved rearward as shown into proximity to the normal ground, and are then turned up for a short distance before merging into the cross-portion of the back-stop.

Any danger of forward overturning is obviated by a pair of laterally spaced angled or generally V-shaped struts 36, which also have another function as will appear. Each of these struts preferably comprises a tubular brace member, the rear end of which is slotted and secured by the bolt 19^b to the rear portion of the under-frame beneath one of the wheel-bearing hubs 19, the member thence inclining downward and forward into proximity to the normal ground level, where it is curved upward and then preferably rearward, to form a forwardly-presented substantially U-shaped bight or bend 37, from which the member is extended straight upward as a standard 38 through one of the forward corner sockets 21 of the under-frame, where it is secured. Laterally disposed, vertically adjustable supports for the foward part of the seat-frame 1 are disposed at the regions of the standards 38 and sockets 21, these supports being preferably constituted by the standards and vertical rods 39 fixed to and depending from the seat-frame to telescope within the hollow standards, the rods 39 having each a vertical series of holes 40, any one of which will receive a pin 41 passed through a hole in the standard or over the top of the standard.

Laterally projecting vertical sockets or guides 42 are secured to the forward ends of the arms 20 of the under-frame, and in conjunction with alined guides 43 secured in laterally projecting relation to the forward part of the seat-frame serve to hold and guide a pair of vertical stabilizer rods 44, the lower ends of which are provided with rubber feet 45 to grip the ground or floor, and the upper ends of which rise above the seat and are provided with knob handles 46 which are in such positions that the occu-

pant can readily manipulate them or place his hands thereon for the purpose of easily hoisting or lowering his weight out of or into the chair. The stabilizers are urged downward to bear upon the ground by springs 47 interposed between the feet 45 and the guides 42, and they are normally sustained with the feet raised a short distance off the ground by pins 48 on the rods cooperating with upper lateral rest terminals 49 of vertical slots 50 in the guides 42. When the knobs are turned slightly by the occupant or another the springs force the stabilizers downward so as to act as ground brakes, either stopping the movement of the chair or enabling it to remain firmly stationary against disturbance or on a sloping surface; and in this position also the stabilizers can be locked against vertical movement, for which purpose the slots 50 are formed with lower lateral terminals 51, the construction being that of a double bayonet joint (see Figs. 13 and 14).

The pillars 5 also serve as a means of attachment for a pusher attachment 52. This attachment includes a substantially U-shaped inclined pusher part, designated by the same number, affording a transverse handle bar 53 and side bars 54. The lower portions of the side bars are applied diagonally to the outer sides of the truss-pillar supports, where they are secured by bolts and thumb nuts 55 passing through holes in the bars and in the upper rear and lower forward corner portions of the pillars. Additional upper holes 56, 57 in the bars and pillars enable the pusher-part to be set at a lower angle if desired.

A wheeled part 58 is mounted movably on the pusher-part so as to depress a pair of small wheels 59 to or near the ground level and to raise them therefrom, in which elevated position they are normally carried. The said wheeled part has a pair of sleeves 60 slidably encircling the side-bars 54, and a cross-bar 61 rigidly connecting the sleeves. Inwardly projecting bosses 62 on the sleeves of this slidable portion receive pivot screws 63 on which the upper end of a frame 64 carrying the wheels at its lower end is hung. A pair of radius links or braces 65, pivoted at their forward ends at 66 to the sides of the lower portions of the side-bars 54 and at their rear ends at 67 to the lower portion of the wheel-frame, control the movement and determine the positions of the wheel-frame, and when the wheel-frame is depressed and locked form with it a V-strut.

For locking and releasing the wheeled portion of the pusher-part a clutch is provided, which is operated by squeezing with the hand which grasps the handle bar 53. As seen most clearly in Figs. 7 to 9 a movable cross-bar 68 is mounted on and adjacent the fixed cross-bar 53 so as to be movable transversely to itself, and carries at its ends forwardly projecting pins or engaging elements 69 which work in holes in the sleeves 60 to take into any pair of two longitudinal series of holes 70 in the backs of the side bars 54. The central, grip portion 71 of the clutch bar is disposed in front of the handle bar and normally spaced somewhat therefrom, so that the hand may readily grasp both bars and move the clutch bar rearward to disengage the pins from the side bars. The end portions of the clutch bar are offset rearwardly from the grip portion 71, so as to lie at the back of the handle bar. A spring 72 interposed between the bars holds the clutch in the engaged position and is readily overcome by the compression of the hand.

In conjunction with the pusher attachment, a wheeled foot-rest attachment is employed, this being applied to the bends 37 of the struts 36. The said attachment comprises a pair of forwardly projecting side members 73, the forward ends of which carry small wheels 74, normally clear of the ground, and the rear ends of which are formed with sockets 75 to rigidly engage the bends of the struts. These sockets are open-sided and comprise inner and outer flange elements which abut the bend at different regions and embrace its limbs in such manner as to rigidly brace the foot-rest on the struts against movement in any direction in the vertical longitudinal plane. As illustrated more particularly in Figs. 10—12, each socket is preferably formed with an outer flange 76 extending from the rear end in conformity with the lower limb and the front of the bend, the flange being thence suppressed until it reappears as a lug 77 standing in front of the upper limb of the strut where it straightens out into the standard 38. The inner flange elements consist preferably simply of two lugs 78, 79, in each case, the lug 78 engaging over the lower limb, and the lug 79 standing behind the upper limb, opposite to the lug 77. The socket thus applied is held against displacement laterally by a retainer 80 forming a movable part of the socket. In the advantageous embodiment illustrated each of these retainers comprises a three-armed turn-button pivoted at 81 on a boss in the lower part of the socket, within the included area of the bend, the parts being so arranged that in the locked position of Fig. 11 the three arms project over the two limbs and forward portion of the bend, while in the unlocked position of Fig. 10 they all lie within the bend, so that the foot-rest member can be removed or applied. A lug 82 on the turn-button adapted to abut in the two positions against the lug 78 and an interior lug 83, limits the movement of the turn member and defines its two positions.

The foot-rest is completed by a board or plate 84, which is secured at its ends by screws 85 to inwardly projecting ledges 86 on the side members. At one side there may be only one screw, as seen in Fig. 6, permitting this side member to swing slightly when the attachment is being applied or removed, so that it is only necessary to take the attachment apart.

The wheeled pusher-attachment and the wheeled foot-rest attachment together make it possible very materially to extend the wheel base to enable a person pushing the chair to get it up and down curbs. The foot-rest attachment when in place inclines upward slightly so that the wheels 74 clear ordinary obstacles. In going down a substantial incline to a level, these wheels take the level first and avoid shock.

When the chair is to be used without an attendant, the pusher-attachment and foot-rest attachment are removed or are not applied.

The back 3 is sustained at different angles by means of notched adjustment bars 87, the rear ends of which are pivoted at 88 to a suitable fixture or brackets on the back. The adjustment bars cooperate with laterally projecting relatively stationary lugs 89 on the rear, upper ends of the limbs of a bail brace 90, the limbs of which extend downwardly and forwardly at the sides of the basket to join with the cross portion 91 of the bail, which extends across and is engaged with the front of the seat frame 1, below the seat. A continuous brace element is thus provided, which affords both a firm connection for the back adjustment bars, and a means of attachment for certain parts as will presently appear. The cross portion 91 of the bail is anchored (Figs. 16–19) in forwardly opening notches 92 in the under parts of the forward corner portions of the seat frame and in upwardly opening notches 93 in the central, forwardly projecting bracket 28.

On the lugs 89 that engage the notches of the adjustment bars 87 weighted locking pieces 94 (Figs. 1 and 5) are hung, outside of the bars. The notches in these bars are in the upper edges, and the locking pieces 94 have shoulders 95 which are arranged to abut the bottoms of the bars when the lugs are seated in the notches. In this way the bars and bail brace are mutually sustained against dropping, and the lugs are locked in the notches. A thumb-nut 96 on the threaded outer end of each lug holds the locking piece in locking position, and when the nut is unscrewed the locking piece can be moved outward on the lug to permit disengagement of the notch from the lug, so that a fresh adjustment may be secured.

Owing to the manner in which the rod or cross-portion 91 of the bail-brace is supported (Figs. 16 and 19 particularly), clearance-room is left above and behind the rod for the application and removal of one or more attachments, such as the leg-rest 97 illustrated in Figs. 15 to 19. This leg-rest shown in these views is a single leg-rest, which may form one of a pair. It is provided at its rear end with upwardly and forwardly turned hooks 98, 99 which are hooked onto the rod from beneath, and when in place are held against lateral or rearward displacement by abutments on the seat frame 1. The lateral abutments comprise at one side a pin 100 and at the other side one of a pair of forwardly projecting lugs 101 of the bracket 28. The back abutments comprise at one side a rib 102 (Fig. 19) on the under cover portion of the seat-frame and one of a pair of laterally projecting lugs 103 on the central bracket.

In order to permit application and removal, the hook 99 is made movable and fixable on the leg-rest, for which purpose (Figs. 17 and 18) it is shown formed on a clip 104 which is fitted so as to be laterally slidable on one rear side portion of the frame of the leg-rest, a transverse slot 105 in the clip and a bolt with wing nut 106 passing through the parts affording lateral movability and locking.

The leg-rest is sustained at various desired angles by a rack brace bar 107, which is pivoted at its forward end 108 to the body of the leg-rest and at its rear portion passes through a slot 109 in a lug 110 on the under-frame 17, shouldered notches 111 on the under side of the bar engaging the tooth formed by the bottom of the slot, by gravity. There are two of these abutment lugs to cooperate with the rack bars of a pair of leg-rests, or of a double leg-rest, the lugs being formed in downwardly projecting relation in the angles between the lateral forward arms 20 and the centrally converging arms 22.

While the preferred embodiments of the invention and the various parts have been described in detail, it will be understood that numerous changes may be made without departing from essentials.

The invention is in certain respects an improvement upon and within my prior patent for invalid chair, No. 1,286,295, dated December 3, 1918.

What I claim as new is:

1. An invalid chair comprising a seat-frame: a pair of truss-pillar supports beneath the rear portion of the seat-frame comprising substantially rectangular frames having spaced front and rear members each adapted for a vertical range of attachment thereto, the rear members being substantially at the back of the seat frame; an under-frame having bearings at its rear portion for a pair of carrying wheels, a pilot caster wheel, and forward adjustable supports for

the seat-frame; an adjustable attachment of the rear end of said under-frame to the front members of the truss-pillar supports; a back-stop; and an adjustable attachment of the back-stop to the rear members of the truss-pillar supports.

2. An invalid chair comprising a seat-frame; a pair of truss-pillar supports beneath the rear portion of the seat-frame having spaced front and rear members each adapted for a vertical range of attachment thereto; an under-frame having bearings at its rear portion for a pair of carrying wheels, a pilot caster wheel, and forward adjustable supports for the seat-frame; an adjustable attachment of the rear end of said under-frame to the front members of the truss-pillar supports; a back-stop; an adjustable attachment of the back-stop to the rear members of the truss-pillar supports; and braces secured to the bottoms of the truss-pillar supports and thence inclining upward and forward and secured to the forward part of the seat-frame.

3. An invalid chair comprising a seat-frame; a pair of truss-pillar supports beneath the rear portion of the seat-frame comprising substantially rectangular frames having spaced front and rear and bottom attachment members, an under frame having bearings at its rear portion for a pair of carrying wheels, said under frame being attached at its rear end to the front members of the truss-pillar supports; and braces secured to the bottom members of said supports and thence inclining upward and forward and secured to the forward part of the seat frame.

4. In an invalid chair, the herein described truss-pillar support for the rear portion of the seat-frame, comprising front and rear vertical members and cross-members, the said front and rear members being constituted as spaced means to which independently vertically adjustable attachment of parts can be made.

5. In an invalid chair, the herein described truss-pillar support for the rear portion of the seat-frame, comprising front and rear vertical members and cross-members, the said front and rear members being constituted as spaced means to which independently vertically adjustable attachment of parts can be made, and the bottom member of the support being adapted to receive the attachment of another part.

6. In an invalid chair, the herein described truss-support comprising a broad vertical frame lying in a vertical longitudinal plane and having a vertical edge flange at right angles to said plane, said flange containing a vertical series of holes for adjustable attachment of a part thereto, and means upon the side of the frame to receive the attachment of a diagonal part.

7. In an invalid chair mounted upon a pair of carrying wheels, a pusher comprising a pusher-part having side bars, a part slidable up and down on the side bars, a pivoted frame depending from said slidable part and having wheels at its lower end, radius bars pivotally connected to the lower part of said frame and extending forward therefrom, and fixed pivotal supports for the forward parts of said radius bars.

8. In an invalid chair mounted upon a pair of carrying wheels, a pusher comprising a pusher-part having side bars, a part slidable up and down on the side bars, a pivoted frame depending from said slidable part and having wheels at its lower end, radius bars pivotally connected to the lower part of said frame and extending forward therefrom, fixed pivotal supports for the forward parts of said radius bars, and a clutch for locking said slidable part to the side-bars in desired raised and lowered positions.

9. In an invalid chair mounted upon a pair of carrying wheels, a pusher comprising a pusher-part having side bars, a part slidable up and down on the side bars, a pivoted frame depending from said slidable part and having wheels at its lower end, radius bars pivotally connected to the lower part of said frame and extending forward therefrom, fixed pivotal supports for the forward parts of said radius bars, said slidable part comprising sleeves and a connecting cross-bar, and a spring-pressed clutch comprising a grip portion adjacent said cross-bar and adapted to be grasped therewith to overcome the spring and end clutch portions which are thereby caused to release the side bars of the pusher part.

10. In an invalid chair mounted upon a pair of carrying wheels, a pusher comprising a pusher-part having side bars, a part slidable up and down on the side bars, a pivoted frame depending from said slidable part and having wheels at its lower end, radius bars pivotally connected to the lower part of said frame and extending forward therefrom, fixed pivotal supports for the forward parts of said radius bars, said slidable part comprising sleeves and a connecting cross-bar, and a spring-pressed clutch comprising a transversely movable cross-bar lying adjacent the first cross-bar and meanst at the ends of the movable cross-bar for engaging the side bars of the pusher-part, and a spring interposed between the slidable part and the clutch.

11. In an invalid chair mounted upon a pair of carrying wheels, a pusher comprising a pusher-part having side bars, a part slidable up and down on the side bars, a pivoted frame depending from said slidable part and having wheels at its lower end, radius bars pivotally connected to the lower part of said frame and extending forward therefrom,

fixed pivotal supports for the forward parts of said radius bars, said slidable part comprising sleeves and a connecting cross-bar, and a spring-pressed clutch comprising a transversely movable cross-bar having a central grip portion lying adjacent to the first cross-bar so as to be grasped therewith and its end portions offset on the other side of the first cross-bar and bearing pins to engage holes in the side bars of the pusher-part.

12. In an invalid chair, a seat-frame, rear supports for the seat-frame, and a unit under-frame adjustably secured at the rear to said supports, said under-frame having bearings at the rear for a pair of carrying wheels, a caster pilot wheel in its forward portion, and a pair of forward sockets, in combination with a pair of struts each formed of a member secured at its rear end to the rear portion of the under-frame, thence inclining downward and forward and being bent upward near the ground level adjacent the pilot wheel and secured to one of the forward sockets, and a pair of foot-rest side members having clips at their rear ends formed to embrace the loop bends of said strut members and having means for attachment and detachment with respect to the strut members.

13. In an invalid chair, the combination with a wheeled frame and a pair of bent strut members thereon each comprising a forward standard member and an inclined brace member joined by a forwardly presented loop bend toward the front and near the ground level, of a foot-rest comprising a pair of side members having clips at their rear ends adapted for removable rigid attachment to the bends of said strut members.

14. In an invalid chair, the combination with a wheeled frame and a pair of bent strut members thereon each comprising a forward standard member and an inclined brace member joined by a forwardly presented loop bend toward the front and near the ground level, of a foot-rest comprising a pair of side members having clips at their rear ends adapted for removable rigid attachment to the bends of said strut members, and a foot-board connecting said side members in such manner as to permit them to be moved laterally one relatively to the other when being attached to or detached from the strut members.

15. In an invalid chair, the combination with a wheeled frame and a pair of bent strut members thereon each comprising a forward standard member and an inclined brace member joined by a forwardly presented loop bend toward the front and near the ground level, of a foot-rest comprising a pair of side members having clips at their rear ends adapted for removable rigid attachment to the bends of said strut members, and small wheels carried at the forward ends of said side members.

16. In an invalid chair, the combination with a bent strut, of a foot-rest side member having an open-sided socket at its rear end formed with flange elements fitting and embracing the portions of the bend so as to sustain and brace the member against displacement in the vertical longitudinal plane, and a movable side retainer for securing the member to the bend against lateral displacement.

17. In an invalid chair, the combination with a bent strut, of a foot-rest side member having an open-sided socket at its rear end formed with flange elements fitting and embracing the portions of the bend so as to sustain and brace the member against displacement in the vertical longitudinal plane, and a side retainer pivoted on the socket and provided with arms which in one position lock over the members of the bend and in another position lie within the bend and permit removal and application.

18. In an invalid chair, the combination with a frame, and a pivoted back, of a bail-brace having its cross portion engaged with and extending across the forward portion of the frame in position to receive attachments and its side portions extending upward and rearward at the sides of the chair, and adjustment bars for the pivoted back connecting with the ends of said bail-brace.

19. In an invalid chair, the combination with a frame, a cross-rod at the front of the frame, and spaced side and back abutments on the frame adjacent said rod, of a leg-rest having hooks at its rear end adapted to engage the rod and cooperate with said abutments, one of said hooks being movable laterally on the leg-rest to permit application and removal.

20. In a chair, the combination with a pivoted back carrying an adjustment rack pivoted to the back so as to be capable of swinging up and down relatively to the back having its notches in its upper edge, of a member providing a relatively stationary lug over the rack to engage said notches, a locking-piece hung on the lug and having a shoulder to engage beneath the bar and sustain the same against dropping, said locking-piece being movable in and out on the lug into and out of engagement with the bar, and a nut on the lug cooperating with the locking-piece.

21. In an invalid chair mounted on a pair of carrying wheels and a pilot wheel, an axle for said carrying wheels, an under-frame having sockets for said axle, said sockets being horizontally elongated, and means for securing the axle to the sockets in forward or rearward adjustment to the center of weight of the occupant.

FREDERICK S. GUERBER.