July 11, 1933. C. C. STEIGER 1,917,557

WHEEL CHAIR

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Fig. 13.

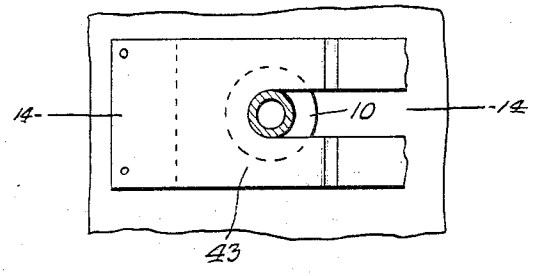
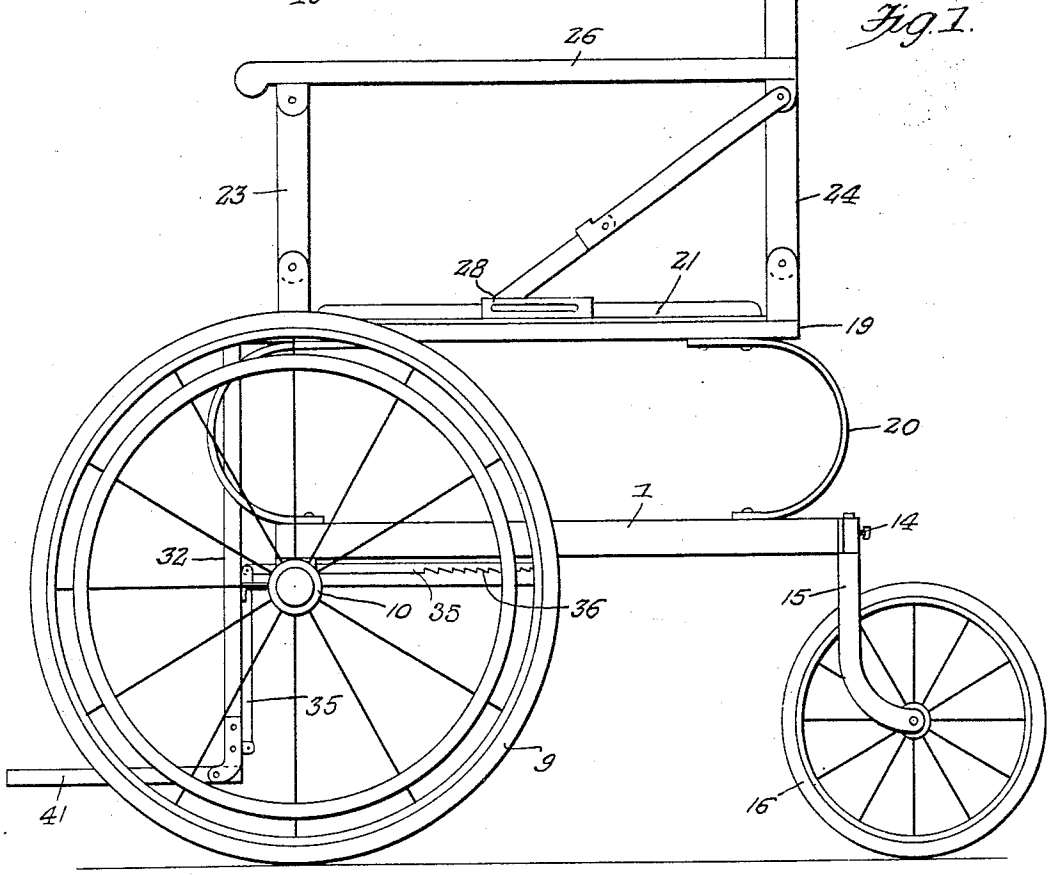


Fig. 1.



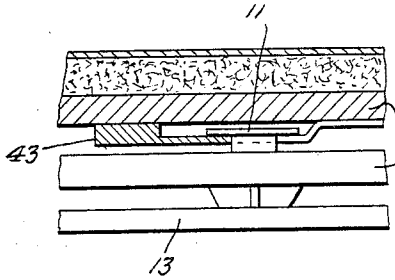


Fig. 14.

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WHEEL-CHAIR

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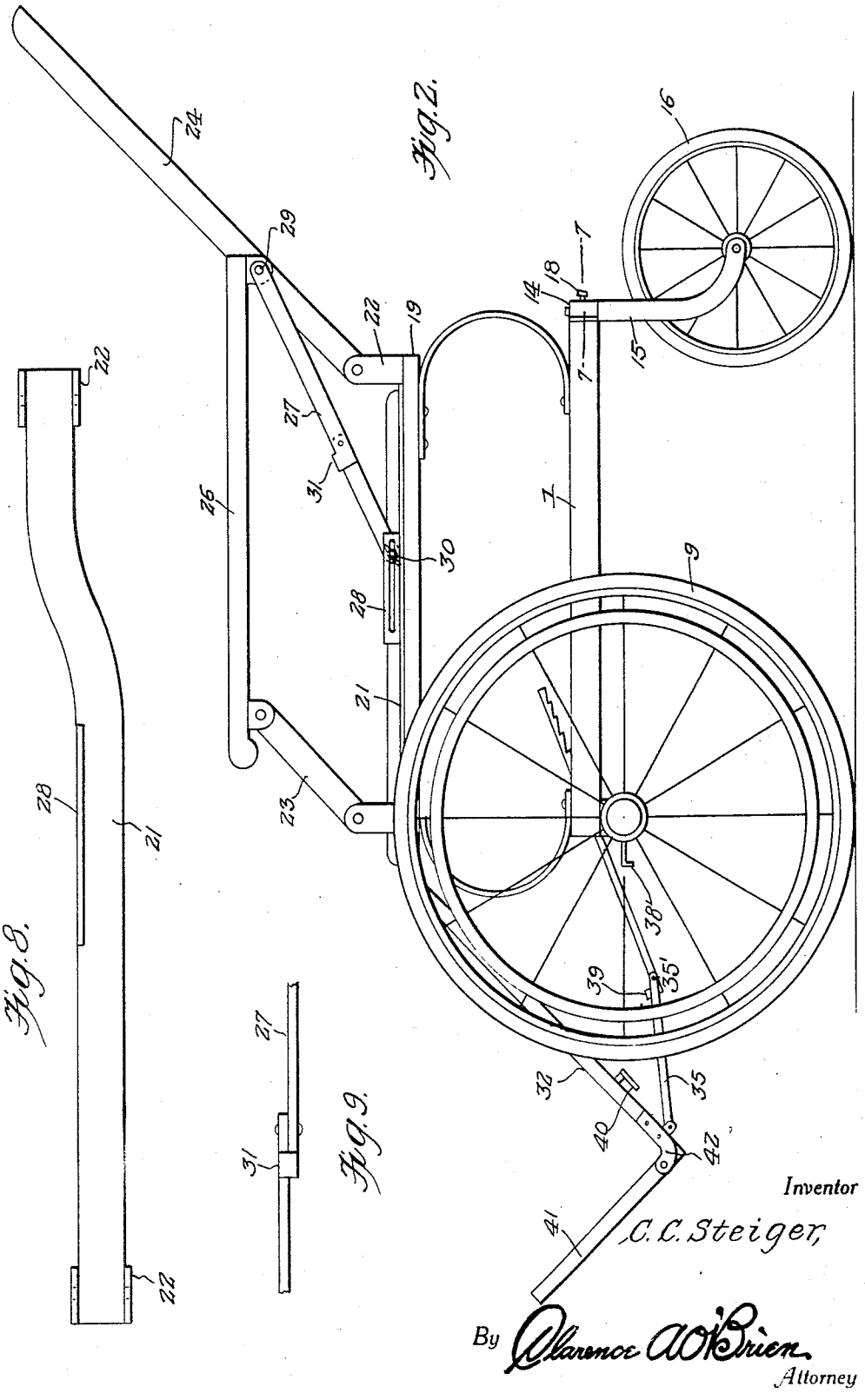


Fig. 2.

Fig. 8.

Fig. 9.

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WHEEL CHAIR

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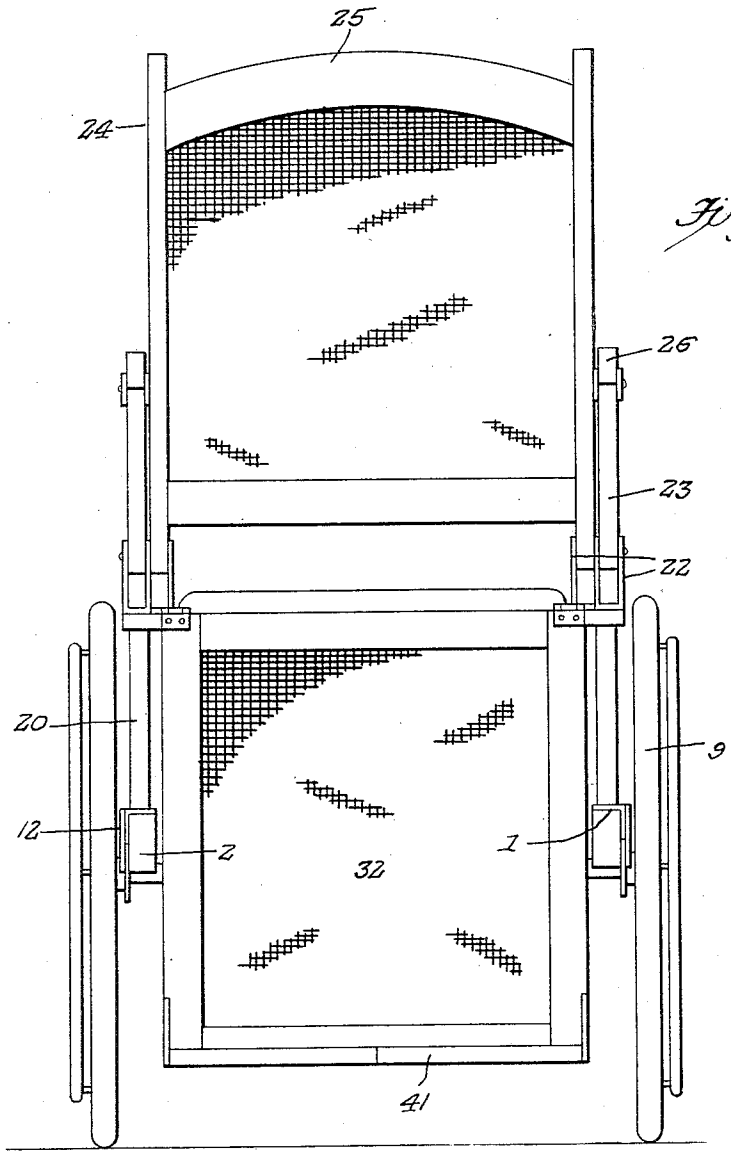


Fig. 3.

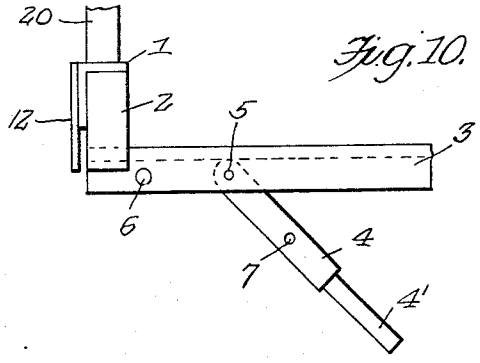


Fig. 10.

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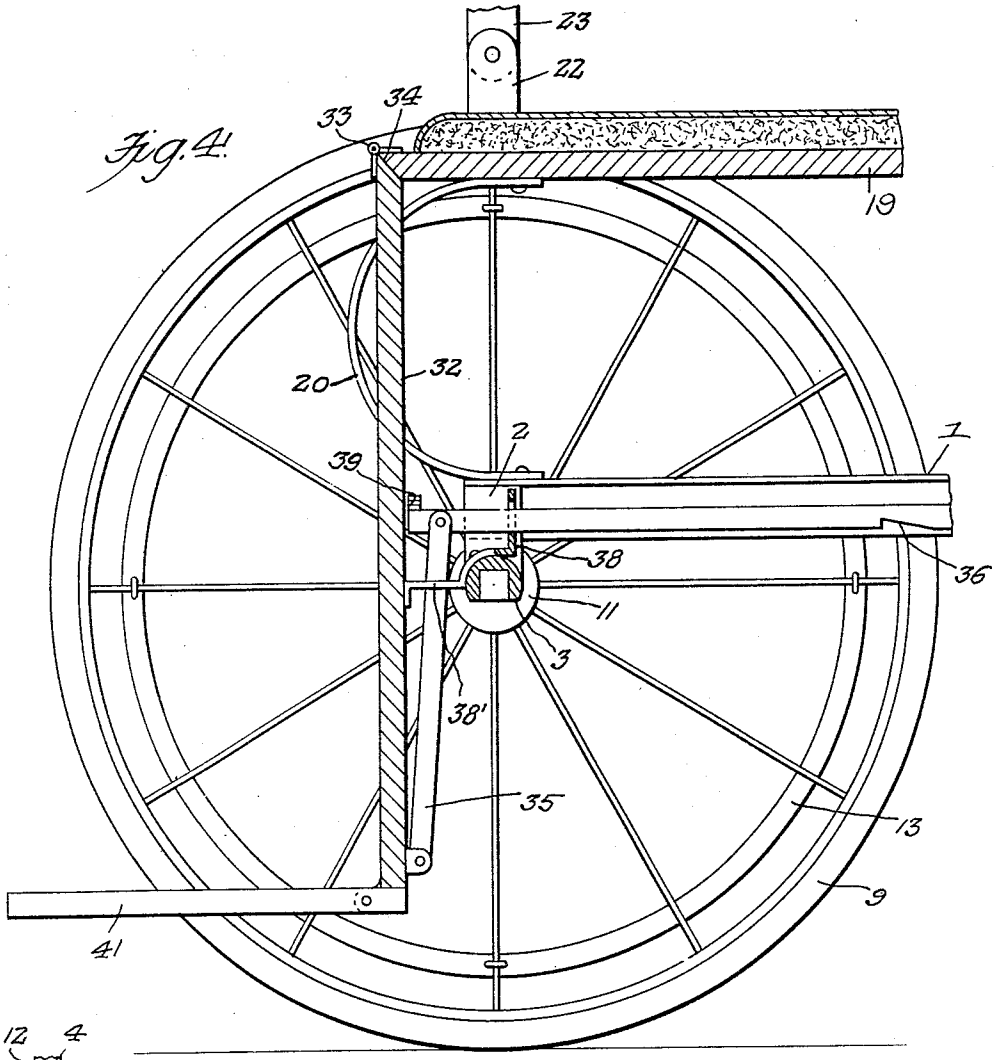
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July 11, 1933. C. C. STEIGER 1,917,557

WHEEL CHAIR

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Fig. 4.



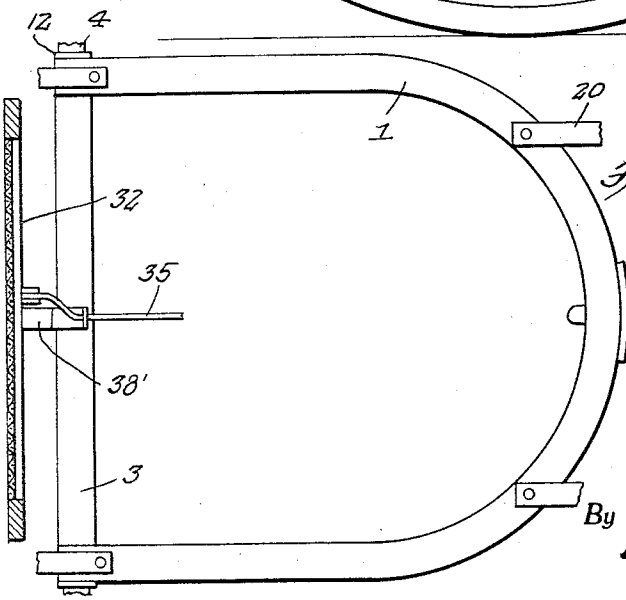


Fig. 6.

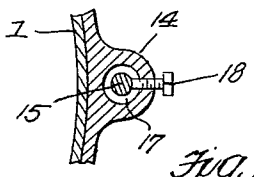


Fig. 7.

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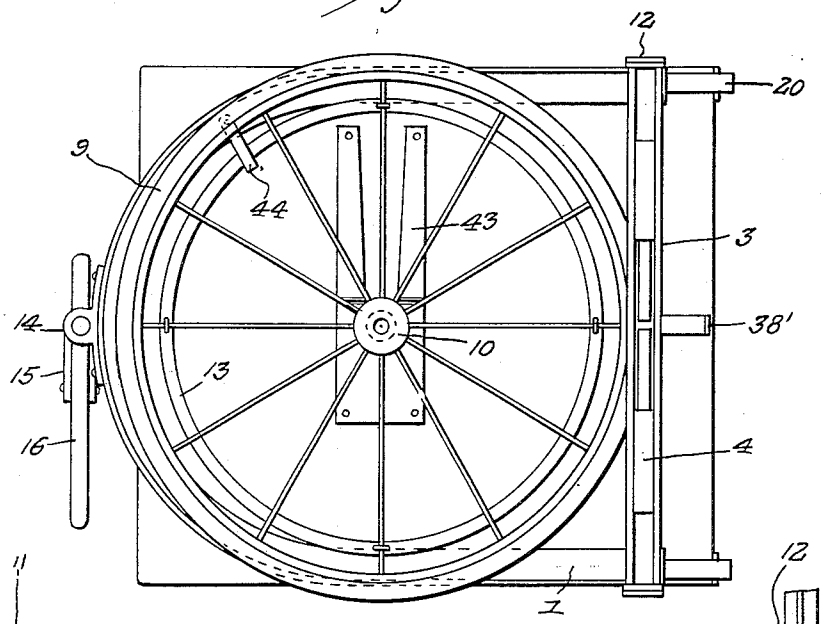
Attorney

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WHEEL CHAIR

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Fig. 12.



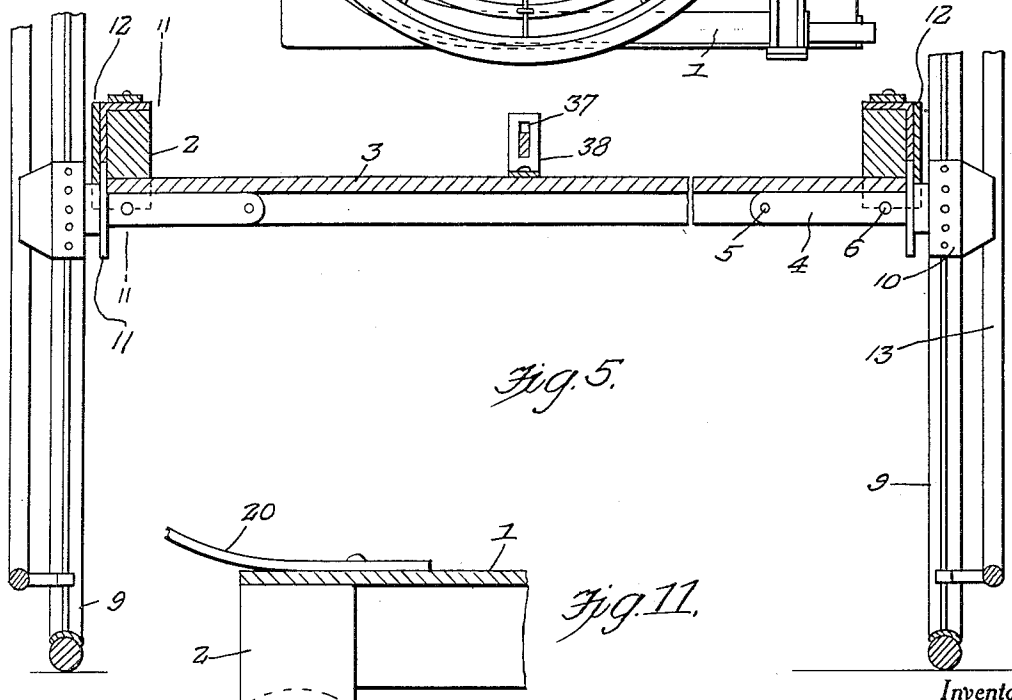


Fig. 5.

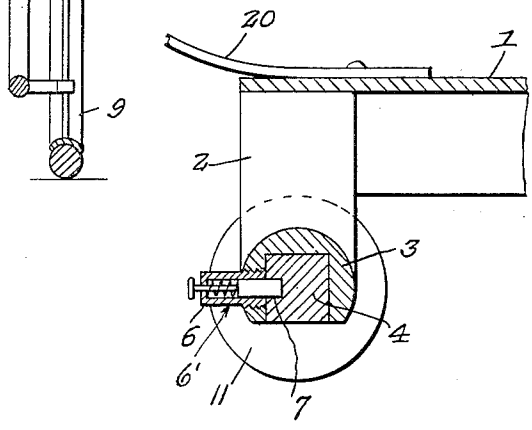


Fig. 11.

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Patented July 11, 1933 1,917,557

UNITED STATES PATENT OFFICE

CLARENCE C. STEIGER, OF JEFFERSON CITY, MISSOURI

WHEEL CHAIR

Application filed August 4, 1931. Serial No. 555,130.

This invention relates to a wheel chair, the general object of the invention being to provide means whereby the back of the seat can be easily and quickly adjusted from a substantially upright position to various inclined positions without removing nuts or bolts and to make the chair so that it can be folded into compact form so it will occupy but little space when stored or shipped, and so that it can be placed in an automobile, train or aeroplane.

Another object of the invention is to so construct and form the parts that the chair can be easily and quickly knocked down or set up and without removing nuts or bolts.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a view of the chair with the back in raised position.

Fig. 2 is a side view with the back in inclined position and with the leg rest in a corresponding position.

Fig. 3 is a front view of Fig. 1.

Fig. 4 is a vertical sectional view through a part of Fig. 1.

Fig. 5 is a sectional view through the front part of the frame and the axle as well as the wheels with parts in elevation.

Fig. 6 is a top plan view of the frame with the leg rest in section.

Fig. 7 is a section on the line 7—7 of Fig. 2.

Fig. 8 is a top plan view of one of the members attached to each side of the seat.

Fig. 9 is a fragmentary edge view of one of the back braces.

Fig. 10 is a fragmentary view showing the spindle member swung downwardly, this view also showing a part of the axle and a part of the frame.

Fig. 11 is a section on line 11—11 of Fig. 5.

Fig. 12 is a bottom plan view showing the chair in knock down position.

Fig. 13 is a fragmentary view of the bottom of the seat showing the wheel supporting member with the hub of the wheel in section.

Fig. 14 is a section on line 14—14 of Fig. 13.

In these drawings, the numeral 1 indicates the angle iron frame of the chair which is of substantially U-shape with its open part located at the front and the ends of the limbs of the U-shaped frame have blocks 2 attached thereto to which is fastened the ends of the channel axle 3. The channel of the axle opens out through the bottom thereof as shown in Figure 11. A spindle carrying member 4, the spindle of which is shown at 4′ is pivoted in each end of the channel of the axle with the horizontal pivot 5 thereof passing through the inner end of the member 4 and through the flanges of the axle, a slight distance from the end of the axle, so that the member 4 can be swung from a position within the channel, with the spindle 4′ extending towards the center of the axle, to a position where the spindle will extend from the end of the axle. Thus the spindle carrying members, when not in use, can be swung to a position where they are entirely located in the channel of the axle and when the chair is to be used the spindle members are swung outwardly so that the spindles 4′ extend from the ends of the axle so that the wheels can be placed thereon. A spring pressed plunger 6 engages a recess 7 in each member 4 to hold the member 4 in operative position and by releasing this plunger the member 4 can be swung downwardly. The cylinder 6′ of this plunger is screwed into one of the flanges of the axle 3 a slight distance from the end thereof and between the end of the axle and the pivot 5. A wheel 9 has its hub 10 rotatably arranged on each spindle. The inner end of each hub carries a flange 11 for engagement by the retainer 12 carried by the front part of the frame 1 for holding the wheel on the spindle. These retainers eliminate the use of projecting parts and nuts for holding the wheels on the spindles. Each retainer is composed of a vertically arranged plate having a curved recess at the bottom which projects below the edge of that part of the frame 1 to which it is attached so that the recess part is spaced from the block 2 and this space receives a portion of the flange 11, as shown in Figure 5 with the curved recess in the bottom of the retainer receiving a portion of the hub. A

rim 13 is attached to each wheel so that the occupant of the chair can propel the chair by grasping the rim with his hand and turning the wheel.

A tubular part 14 is attached to or connected with the rear end of the frame 1 for receiving the upper end of the fork 15 which supports the rear wheel 16 the upper end of the fork being grooved as shown at 17 in Fig. 7 to receive a bolt 18 passing through a threaded hole in the part 14 so that the wheel 16 can act as a caster wheel.

A seat 19 is supported from the frame 1 by the springs 20 and an elongated plate 21 having a rear offset part is fastened to each side of the seat on the top face thereof. Each plate has a pair of upwardly extending lugs 22 at each end thereof and the uprights 23 have their lower ends pivoted between the front pairs of lugs 22 and the side members 24 of the back 25 have their lower ends pivoted between the pairs of lugs 22 at the rear of the members 21.

The arm rests 26 are pivoted to the upper ends of the members 23 and to parts of the members 24. A pair of sectional braces 27 connect the back with the slotted upstanding flanges 28 on the members 21. The upper ends of the braces 27 are pivoted to the back by the pins 29 which connect the arm rests 26 to the back and the lower end of each brace carries a bolt 30 which passes through the slot in each of the members or flanges 28 with the thumb nut on the bolt clamping the lower end of the brace in adjusted position in the slot. A lip 31 formed on the upper section of the brace engages the lower section for preventing the brace being broken downwardly but enables it to be broken upwardly.

From the foregoing it will be seen that by adjusting the bolts 30 in the slots of the flanges 28 the back of the chain can be moved from a vertical position as shown in Figure 1 to various inclined positions, one of which is shown in Fig. 2. As will be seen the arm rests 26 move with the chair. Attention is called to the fact that it is simply necessary to release the thumb nuts on the bolts 30 in order to make the adjustment so it is not necessary to remove any bolts or nuts and thus the adjustment can be made very easily and quickly.

A leg rest 32 has its upper end hingedly connected to the front of the seat as shown at 33 and the adjacent edges of the leg rest and seat are beveled as shown at 34 which permits the leg rest to occupy a vertical position shown in Figs. 1 and 4, or different inclined positions, one of which is shown in Fig. 2 or a position where the leg rest is folded upon the seat. A sectional brace 35 comprising a lower section and an upper section pivoted together at 35′ has its lower end pivoted to the under face of the leg rest at the bottom thereof and the lower edge of the upper section is notched as shown at 36 to engage the bottom wall of a slot 37 in a bracket 38 fastened to the central part of the axle 3 so that by placing the proper notch in engagement with the wall of the slot the brace will hold the leg rest in any desired poosition.

A lip 39 is formed on the upper edge of the lower end of the upper section of the brace to engage the upper edge of the upper end of the lower section, this lip acting to prevent the brace from breaking downwardly but permitting it to break upwardly. The lip 39 is located slightly above the upper edge of the upper section so the brace sags slightly downwardly as shown in Fig. 2, when in operative position. The bracket 38 is provided with a forwardly extending part 38′ which acts as a stop for the leg rest when the same is in vertical position as shown in Fig. 4. A latch 40 is fastened to the bottom of the leg rest for holding the brace 35 thereagainst when the two parts of the brace are folded together, see Fig. 2. The two parts of the sectional brace 35 may be folded together against the leg rest 32 by swinging the pivoted or lower section of the brace towards the leg rest and raising the leg rest so as to pull the notched section of the brace out of the slot 37 in the bracket 38, after which said notched section can be swung downwardly towards the leg rest and thus be placed alongside the lower pivoted section of the brace and against the leg rest. Then by moving the latch 40 over the two sections of the brace, said brace will be held in folded position against the leg rest.

Foot rests 41 are hingedly connected to the lower end of the leg rest by the brackets 42, the parts being so formed that the members 41 can be swung against the leg rest 32 but are held against downward movement beyond a position at right angles to the leg rest as shown in Figs. 2 and 4 as the brackets 42 are curved to cause the hinged end of each rest 41 to abut the lower end of rest 32 when the rest 41 is at right angles to rest 32, as shown in Fig. 4.

From the foregoing it will be seen that the leg rest can be adjusted independently of the back and that both the back and the leg rests can be adjusted to various positions to assure the comfort of the user.

A forked plate 43 is attached to the bottom of the seat with parts offset to receive a flange 11 of one of the wheels when said wheel is removed from the spindle and placed between the frame 1 and the seat as shown in Figs. 12, 13 and 14. Another wheel is removed and placed against the frame 1 with a part resting on the axle 3 and this wheel is held in position by a latch 44 pivoted to the frame and engaging the rim 13 of the wheel so that the two wheels are supported

under the seat. The bolt 18 of the caster or rear wheel is removed from the tubular part 14 and the wheel reversed and the end of the fork placed back in the tubular part and secured therein by the bolt 18, which may be a spring plunger if desired, so as to support the caster wheel at the back of the knocked down chair as shown in Fig. 12. Of course the spindle carrying members 4 are swung into the axle as shown in Fig. 12 so that the parts with the foot rests swung against the leg rest and the leg rest against the seat and the back swung forwardly against the foot rests, will occupy but little space and the device with the parts in knocked down condition can be easily carried about or placed in an automobile, train or aeroplane.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts provided that such changes fall within the scope of the appended claims.

Having thus described my invention, what I claim as new is:

1. In a chair of the class described, a frame, a channel-shaped axle connected with the front part of the frame, a spindle member pivotally connected to each end of the axle, a slight distance from the end of the axle whereby said spindle member is adapted to be placed in a position with the spindle extending from the end of the axle to receive a wheel, or the spindle member can be swung to a position where the member and its spindle can be located within the channel of the axle, after the wheel has been removed, a wheel on the spindle of each member, a flange on the hub of each wheel, a retainer connected with the frame and engaging the flange for removably holding the wheel on the spindle, said wheels when removed being adapted to be placed between the frame and the seat and means for holding the wheels in position between the frame and the seat.

2. In a chair of the class described, a frame, a channel-shaped axle connected with the front part of the frame, a spindle member pivotally connected to each end of the axle, a slight distance from the end of the axle whereby said spindle member is adapted to be placed in a position with the spindle extending from the end of the axle to receive a wheel, or the spindle member can be swung to a position where the member and its spindle can be located within the channel of the axle, after the wheel has been removed, a wheel on the spindle of each member, a flange on the hub of each wheel, a retainer connected with the frame and engaging the flange for removably holding the wheel on the spindle, said wheels when removed being adapted to be placed between the frame and the seat and means for holding the wheels in position between the frame and the seat, a socket member at the rear of the frame, a caster wheel including a fork member and means for holding the fork member in the socket member with the caster wheel in operative position, such means also holding the caster wheel and its fork member in an inverted position at the rear of the seat and its rear springs.

In testimony whereof I affix my signature.

CLARENCE C. STEIGER.