(No Model.) 2 Sheets—Sheet 1.

L. W. SERRELL.

INVALID CHAIR.

No. 315,669. Patented Apr. 14, 1885.

Fig. 1

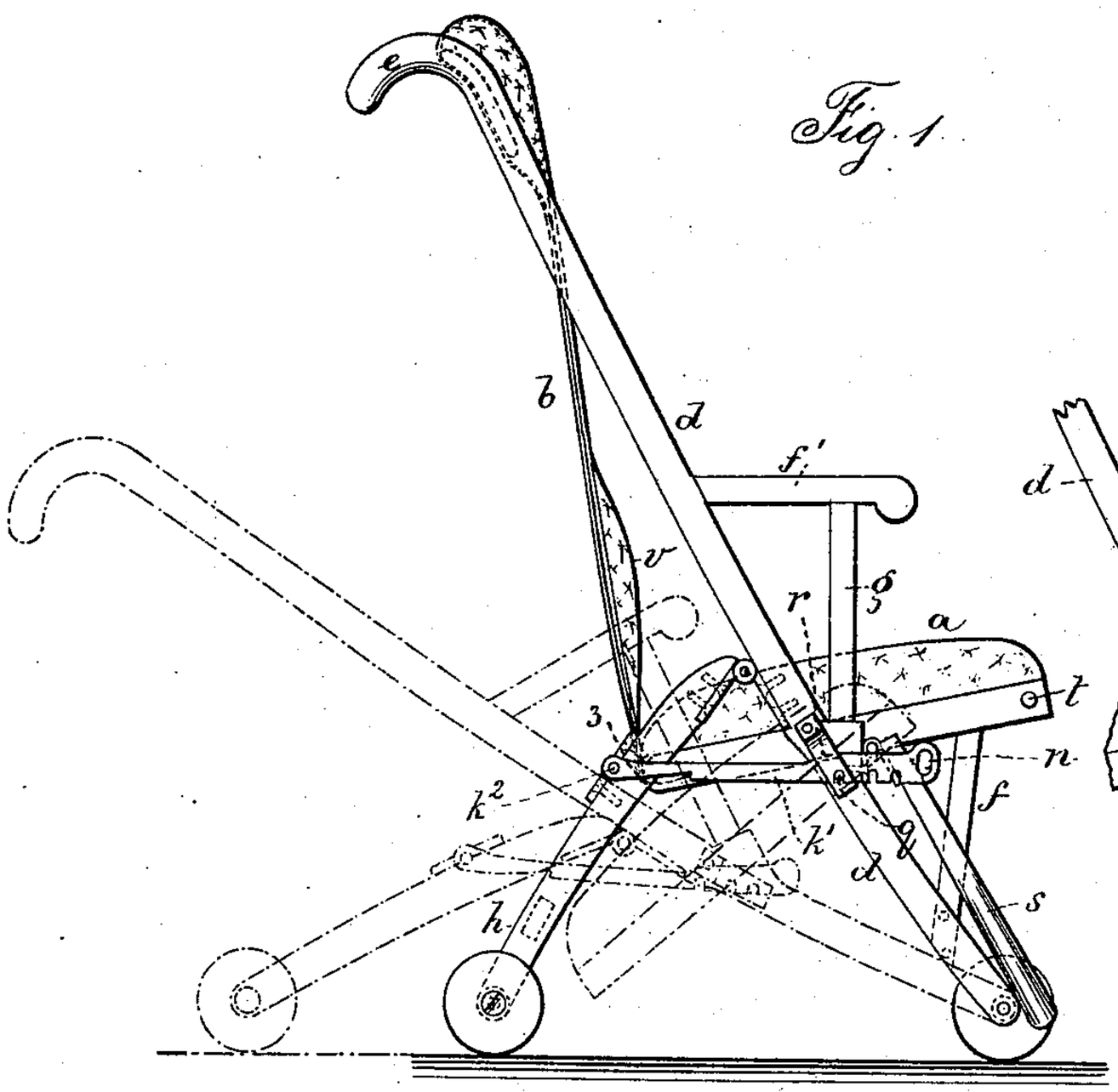


Fig. 6.

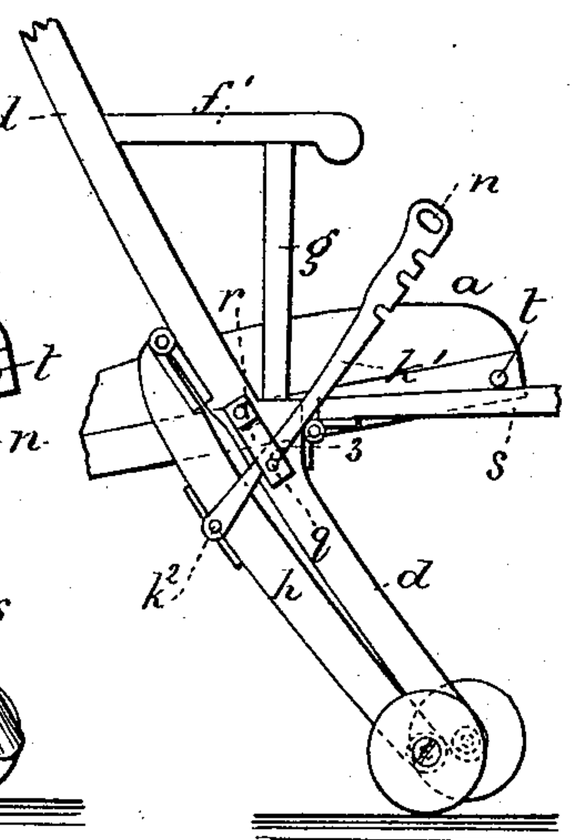


Fig. 4.

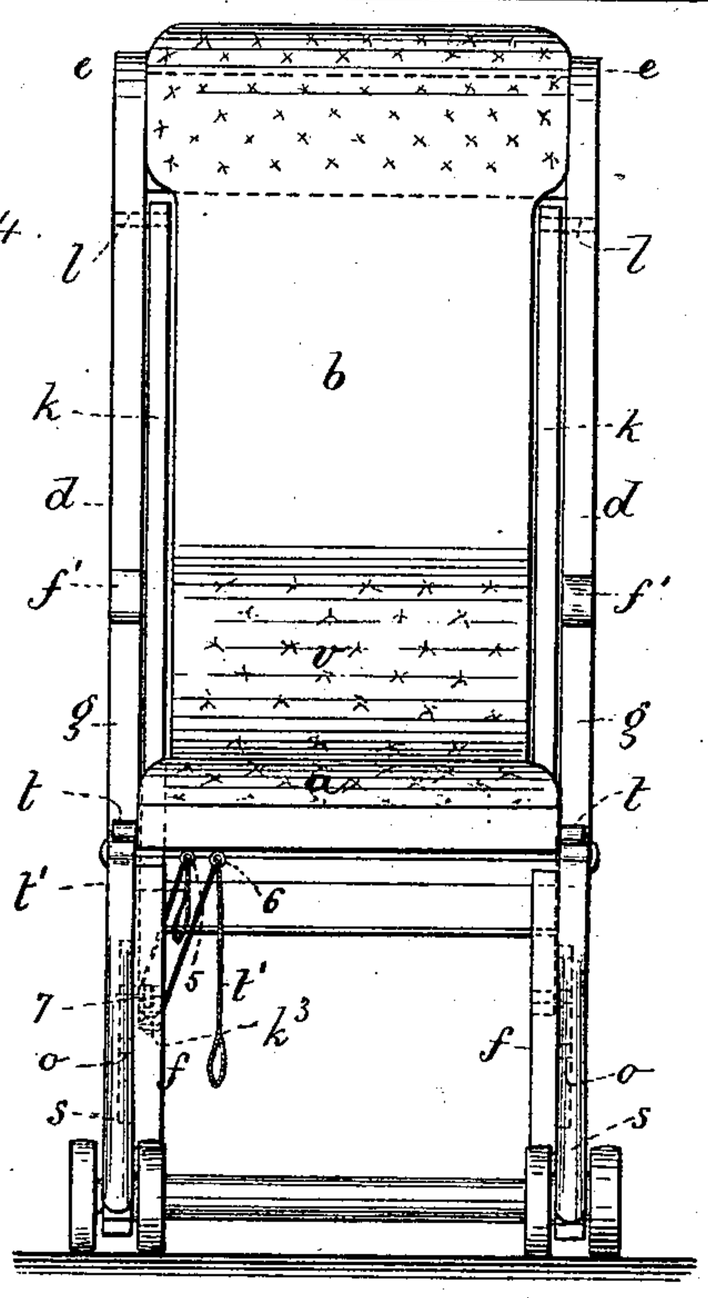
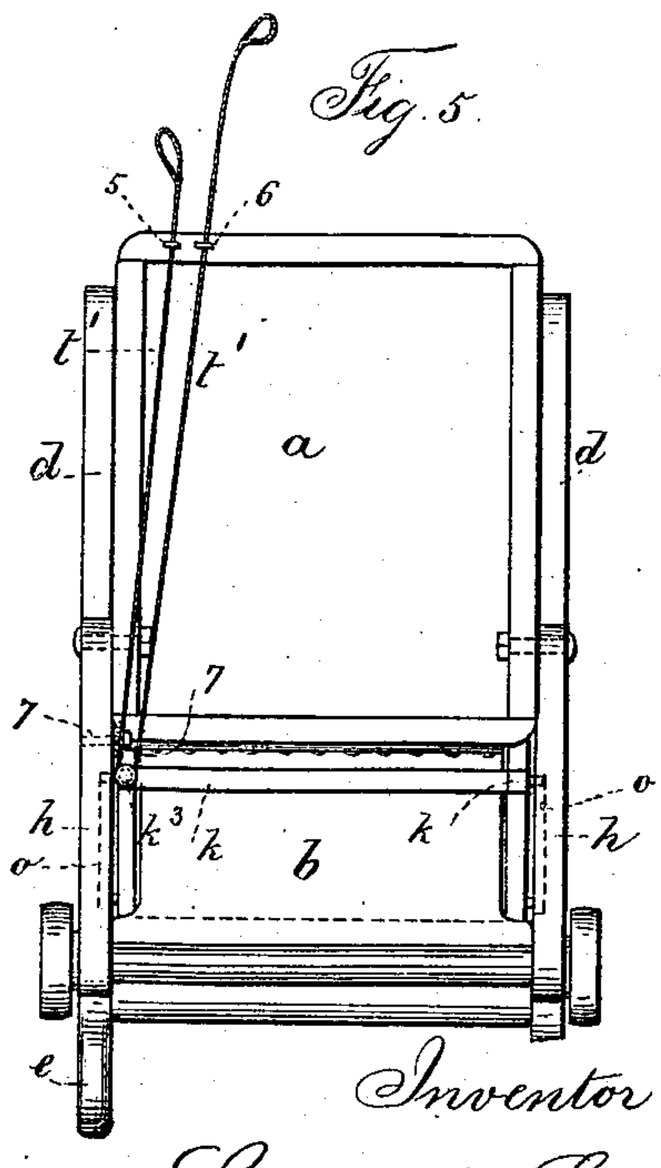


Fig. 5.



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(No Model.) 2 Sheets—Sheet 2

L. W. SERRELL.

INVALID CHAIR.

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Fig. 2.

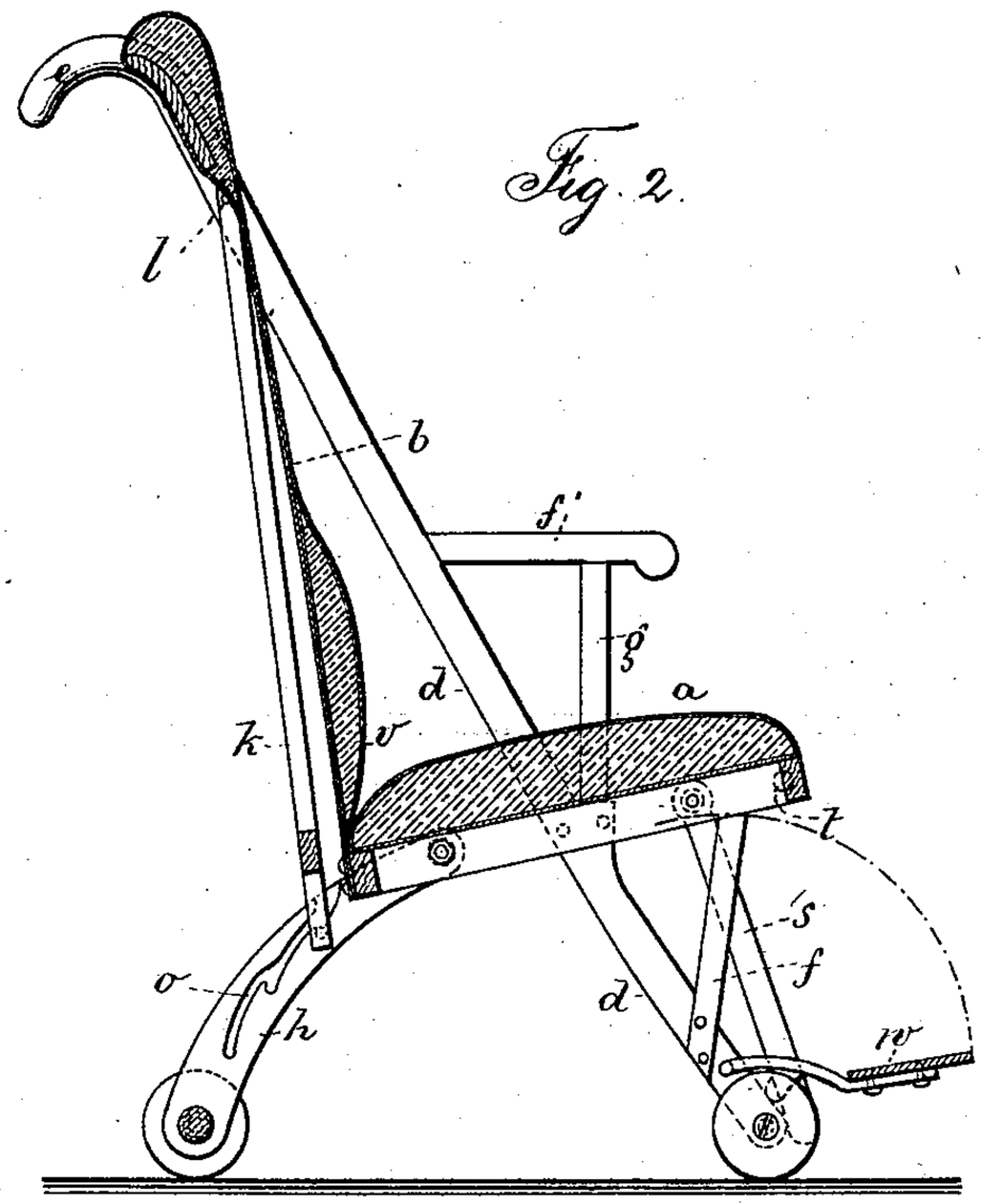
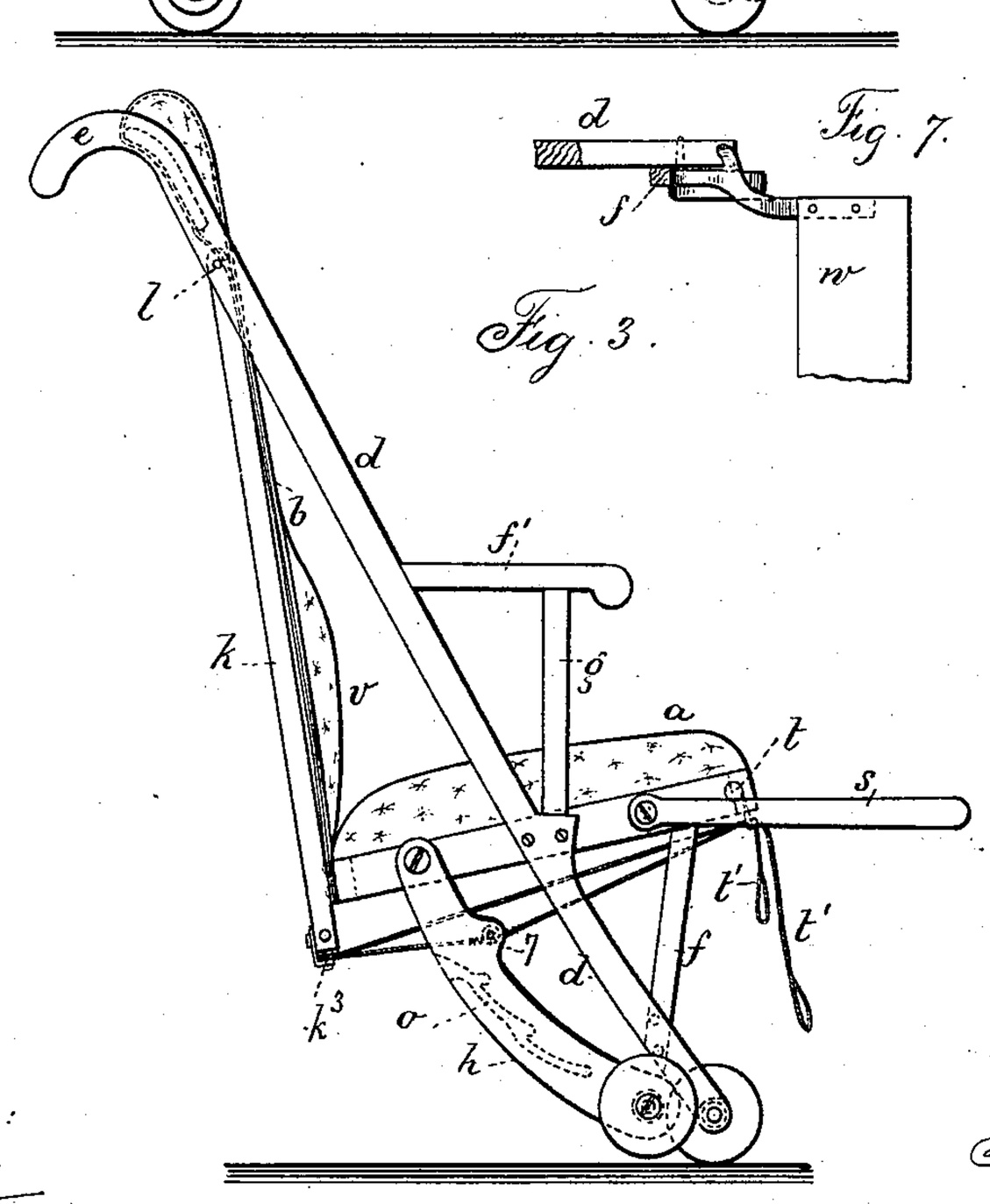


Fig. 7.

Fig. 3.



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UNITED STATES PATENT OFFICE.

LEMUEL W. SERRELL, OF PLAINFIELD, NEW JERSEY.

INVALID-CHAIR.

SPECIFICATION forming part of Letters Patent No. 315,669, dated April 14, 1885.

Application filed July 11, 1884. (No model.)

To all whom it may concern:

Be it known that I, LEMUEL WRIGHT SERRELL, of Plainfield, in the county of Union and State of New Jersey, have invented an Improvement in Invalid-Chairs, of which the following is a specification.

In spinal complaints the upper part of the body is often vigorous, but the legs are partially or entirely paralyzed, and the person is confined to one place on account of the difficulty of lifting and moving such person and the risk of further spinal injury. In cases of bodily prostration great benefit often arises from change of air; but the person cannot endure the fatigue consequent on being moved.

Many rolling chairs have been made, and also sedans adapted to being carried; but these cannot be rolled about and also used in taking a person up or down stairs or into a carriage, stage, or railway-car.

My improved chair is to enable attendants to move a person from place to place with the greatest convenience and facility, to carry the person up or down stairs, to roll the person around in the house or out-of-doors, to move the invalid into and out of railway-cars, carriages, or stages, and that without the person having to change position in the chair, and such chair can be set with the back at the ordinary inclination or be changed into a partially-recumbent position, and the chair itself occupies less space than an ordinary easy-chair, so that the person can remain seated in the same in a railway-car in one of the spaces near the end, or can be rolled or moved up to a seat so closely that no difficulty is experienced in slipping from one seat to the other.

In the drawings, Figure 1 is a side view of the chair in the ordinary posture for use. Fig. 2 is a sectional view of the chair with braces for supporting the back on the back legs. Fig. 3 is an elevation of the same with the parts in position for moving the person up or down stairs. Fig. 4 is a front view of the chair. Fig. 5 is an inverted plan illustrating the parts made use of for moving the back legs with cords. Fig. 6 is a partial elevation showing the back legs of the chair represented in Fig. 1 as drawn forward, and Fig. 7 shows one end of the foot-rest represented in Fig. 2.

The seat *a* and back *b* are either caned, padded, or made of flexible material. It is necessary to employ a rigid seat-frame; but the back may be of flexible material or a padded support extending from a cross-bar at the top of the back-frame to the seat-frame. The front legs, *d*, are at an inclination and extend above the seat and form the side frames of the back, and they terminate as handles *e*, preferably in a form similar to plow-handles. The front legs are firmly attached to the sides of the seat-frame, and the braces *f*, extending from the seat-frame to the front legs, strengthen the front legs and hold the seat-frame rigidly in its position relatively to the legs and side frames. The side frames, *d*, are provided with arm-pieces *f'*. These arm-pieces are firmly connected at their back ends with the side frames, and they are supported by the struts *g*. These arm-pieces do not extend as far forward as usual, and they require to be strong, because the invalid grasps said arms with the hands in moving the body upon or off of the seat, and the arms must not extend as far as the front of the seat-frame, so as to be in the way where the person slips himself or herself off the seat sidewise upon an adjacent seat, or the reverse. The back legs, *h*, are connected together by cross-pieces to form a frame, and are hinged at their upper ends to the back-frame or to the seat-frame, and can be swung forward so as to be close to and in line with the inclined front legs, or else swung back to support the chair. The farther the back legs are swung the more the back of the chair will be inclined. (See dotted lines in Fig. 1 and the reverse.) Thus by changing the inclination of the back legs the patient will be in a more or less recumbent or upright position. The back legs are held in the position to which they may be swung by any suitable means. In Figs. 2, 3, 4, and 5 I have shown the swinging frame *k* pivoted at *l* to the side frames, *d*, and provided at its lower end with studs projecting horizontally and passing into the stepped grooves *o* in the inner faces of the back legs. By moving the parts so that the studs rest upon the desired steps or offsets in the grooves the back legs may be held at the desired inclination to the back and the chair-seat and back sustained in a reclining position. The same object is attained by the use of the notched links or tie-bars *k'*. (Shown in Figs. 1 and 6.) These tie-bars are pivoted to the back

legs and notched on the under edges near the front ends, the notches being adapted to pass over the projecting shanks of screws *q*, introduced into the sides of the front legs. It is preferable to provide guide-loops *r* to keep the bars *k'* in their positions, but to allow the bars to be lifted and moved endwise in varying the inclination of the back legs and of the chair-back. Usually the front ends of these bars *k'* will terminate as loops or handles *n*, and it is preferable that these bars be formed with or connected to a cross-bar, *k²*, that extends across from one bar *k'* to the other, so that both bars can be moved and operated together by taking hold of one of the handles *n*. The handles *s* are pivoted or hinged at their upper and rear ends to the seat-frame or the front legs, and when not in use they hang down against or near to the front legs. When raised for use they are stopped against the projections *t* upon the seat-frame, or by projections on the handles coming against the under side of the seat-frame. There are wheels, rollers, or casters upon the lower ends of the respective legs, so that the chair can be rolled from place to place. I prefer to use wheels of hard wood—such as lignum-vitæ—with rounded edges, as shown, and the front wheels should be placed on the insides of the front legs, so as to occupy less space in introducing the front part of the chair into a carriage-door; but the back rollers may be upon the outer sides of the back legs to give greater steadiness to the chair. The width of the chair may be seventeen inches, more or less, according to the person; but I have found this size sufficient for most persons and the most convenient, as the chair requires to be as narrow as possible to facilitate the carrying of the person up or down stairs, and the passing of the chair through carriage, car, or stage doors. It is now to be understood that the patient can be wheeled from place to place in this chair, and in either an upright or a recumbent posture, and that when the back legs are swung forward the chair can be rolled around on the two front rollers, similarly to a hand-truck or wheelbarrow, the attendant taking hold of the handles *e*, and in this condition the chair can be run up or down an inclined plane or gang-plank without the least discomfort to the patient. This can be done by one person. When the patient is to be carried up or down stairs, two persons are needed—one to grasp the handles *e*, the other to grasp and raise the handles *s*. When the chair is lifted, the patient seizes one of the handles *n* and raises the bars *k'*, and draws them and the back legs forward into the position shown in Figs. 3 and 6, where these back legs are entirely out of the way, and the person can be carried up or down stairs or steps with ease by the attendants. It is preferable to provide a notch, 3, in one or both bars *k'*, to catch over the screw or stud *q* and hold the back legs in their forward position, as seen in Fig. 6. The patient restores the back legs to their normal position before the chair is set down. The front handles, *s*, hanging down as in Figs. 1 and 2, are not in the way of the patient when using the chair in the ordinary manner.

In order to manipulate the back legs when the frame *k* is used, I employ the devices shown in Figs. 3, 4, and 5. The cord *t'* is passed through guide-eyes 5 and 6 on the under side of the seat and around a pulley-block, *k³*, upon the lower end of one of the frame-pieces *k*, the sheave lying horizontally: The cord, where it passes close to the back leg, is attached to a projecting stud, 7, and the slots *o* in the inner faces of the legs are extended upwardly and are open at their upper end, so that when the patient pulls upon one end of the cord *t'* the back-leg frame is swung forward, and the studs on the frame *k* remaining stationary, the slots of the legs move over the same, and the legs swing forward entirely clear of the studs. Upon pulling the other end of the cord the tension insures the holding of the back-frame *k* by the pulley *k³* in position, so that as the legs are swung backwardly by the cord as it draws around the said pulley the slots will receive the studs, and the parts will be brought into their position for the chair to be supported by the back-frame *k*, as seen in Fig. 2.

It will be apparent that this improvement is not dependent upon or limited by the material of which the chair is made or the ornamental character of the chair-frame or chair. It is, however, preferable to pad the back of the chair at *v* to form a support for the small of the back.

The foot-rest *w* is provided with metal end pieces, which are pivoted at their back ends to the front legs, *d*, and this rest can be turned up under the seat and out of the way when not required, or it may be dispensed with.

All the novel and patentable devices and combinations herein described and shown are my invention. The following is a summary of the features which it is believed should properly form the subjects of claims for the protection of said invention.

I claim as my invention—

1. The combination, with the seat in an invalid-chair, of side pieces having handles at their upper ends and pivoted handles at the front swinging down below the seat when not in use, substantially as set forth.

2. The combination, with the seat and the back, of side pieces rigidly connected to the seat-frame and having handles at their upper ends, swinging back legs pivoted at their upper ends, and means for holding the back legs in their proper position, and for swinging the said back legs forward to the front legs, substantially as set forth.

3. The combination, with the seat and back, of side frames rigidly attached to the seat-frame, handles at the upper ends of such side frames, short rigid arm-pieces, and hinged back legs fitted to be swung independently of the seat-frame, substantially as specified.

4. The combination, in an invalid-chair, of side pieces having handles at their upper ends, and the seat-frame, back, and arm-pieces rigidly connected, and movable handles at the front part of the seat-frame, substantially as set forth.

5. The side pieces having handles at their upper ends, the front legs, and wheels at the lower ends, in combination with the seat-frame, to which the side pieces are rigidly fastened, the back, and the back legs hinged at their upper ends and swinging independently of the seat, substantially as set forth.

6. The combination, with the seat, back, and side pieces rigidly connected together, of back legs pivoted at their upper ends, movable connections between the back legs, and side pieces, substantially as set forth.

7. The combination, with the seat and back, of side frames forming also the front legs, back legs pivoted at their upper ends, and movable notched links pivoted to the back legs and extending to the front legs, substantially as set forth.

Signed by me this 10th day of July, A. D. 1884.

LEMUEL W. SERRELL.

Witnesses:
GEO. T. PINCKNEY,
WILLIAM G. MOTT.