E. E. HIGGINS.

INVALID'S CHAIR.

APPLICATION FILED APR. 9, 1906. RENEWED JAN. 11, 1909.

928,051. **Patented July 13, 1909.**

Fig. 5.

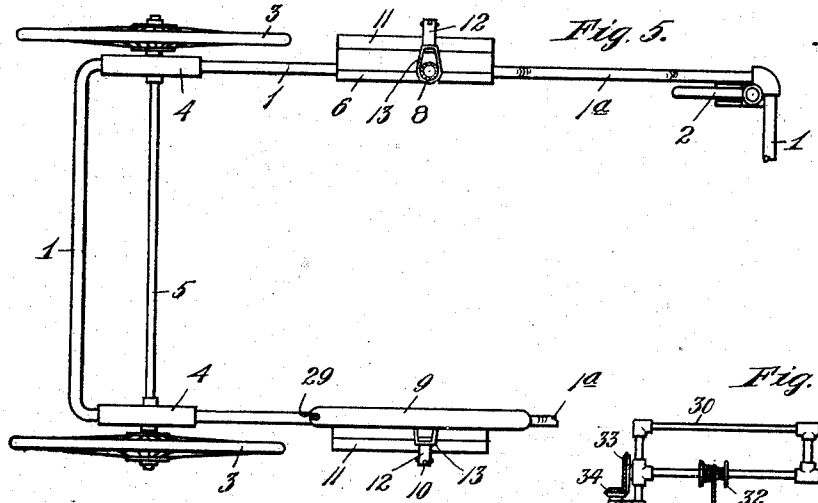


Fig. 4.

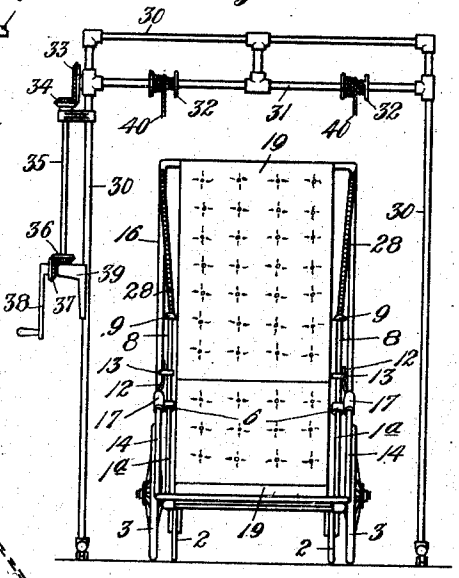


Fig. 2.

Fig. 1.

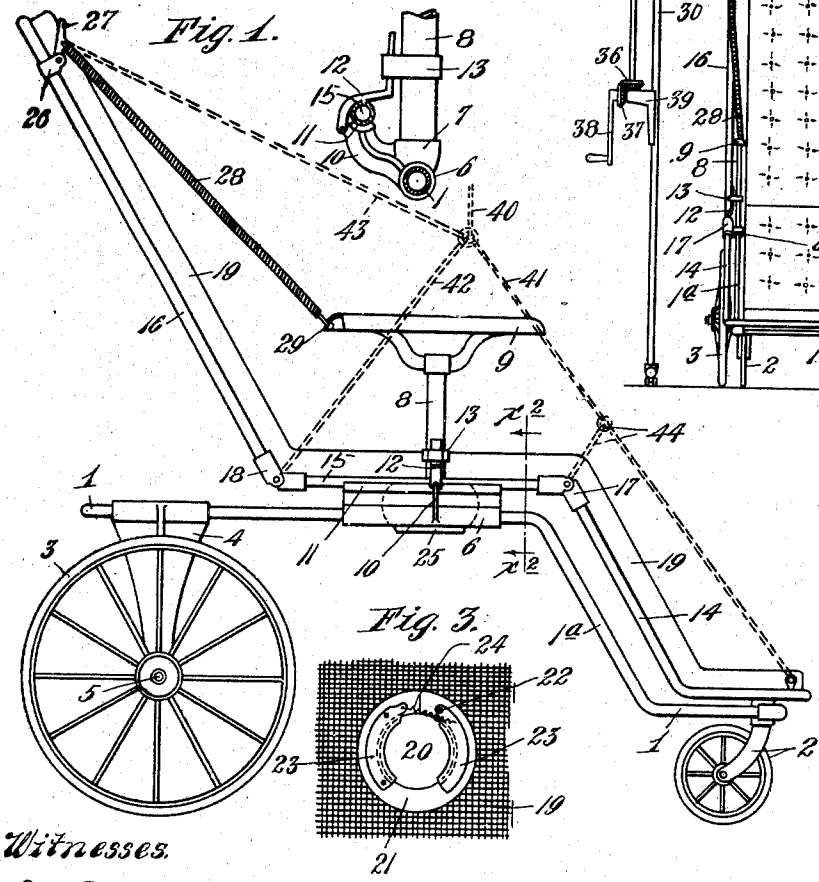


Fig. 3.

Witnesses.

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UNITED STATES PATENT OFFICE.

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INVALID'S CHAIR.

No. 928,051. Specification of Letters Patent. Patented July 13, 1909.

Application filed April 9, 1906, Serial No. 310,674. Renewed January 11, 1909. Serial No. 471,780.

To all whom it may concern:

Be it known that I, ELMER E. HIGGINS, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Invalids' Chairs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its special object to provide an improved invalid's chair, and to this end it consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate my invention, like characters indicate like parts throughout the several views. Figure 1 is a view in side elevation, showing the improved chair and a truck for supporting the same. Fig. 2 is a detail in transverse vertical section taken through one side of the framework of the truck and of the folding seat on the line x^2 x^2 of Fig. 1. Fig. 3 is a bottom plan view of a portion of the folding seat and showing a device for detachably clamping a chamber in position under an opening, which is formed in the said seat. Fig. 4 is a view in front elevation showing the chair in position under a hoisting frame; and, Fig. 5 is a plan view of the truck of the portable chair, some parts thereof being broken away.

The portable truck is made up of an iron frame 1 that is approximately rectangular in plan view but is bent at 1^a so that its forward portion is quite close to the floor. The forward portion of said frame is supported by caster wheels 2, applied to the corner forward portions thereof, while the rear portion of said frame is supported by a pair of large wheels 3 journaled to the lower portions of brackets 4, rigidly secured to the rear portion of said frame. As shown, said wheels 2 are directly journaled on the ends of an axle 5 that is rigidly secured to said brackets 4.

Surrounding and rigidly secured to the horizontal portions of the frame 1, just rear of the inclined portions 1^a, are sleeve-like bearings 6, having hubs 7 in which the lower ends of short tubular standards 8 are rigidly secured, preferably by being cast therein. Rigidly secured to the upper ends of standards 8 are arm pieces 9 that extend longitudinally of and overlie the sides of said frame 1. Extending upward and outward from the bearings 6 are supporting arms 10 that terminate in grooved seats 11. To the upper ends of the arms 10 are pivoted crooked clamping levers 12 having upturned ends. Mounted to slide vertically on the standards 8 are clamping loops 13, which when forced downward, engage the upturned ends of the respective clamping levers 12. The purpose of the clamping devices just described will appear a little later on.

The folding seat, or chair proper, herein employed is preferably of substantially the form disclosed and claimed in my U. S. Letters Patent 787,760, issued of date April 18th, 1905, the said patent being entitled "Portable invalid's chair". The frame of this folding seat is made up of three sections, 14, 15 and 16, which sections are connected by joints 17 and 18, and are each made up of gas pipe or rod sections, having parallel side portions. Secured to the sections of the seat frame is a cushion 19, which is adapted to fold or bend at the joints 17 and 18. The horizontal intermediate portion of the cushion 19 is cut away at 20, and is preferably reinforced by an annular metallic frame 21, secured to said cushion. Secured to the under portion of this frame 21 is a pair of segmental clamps 23, one being rigidly secured, and the other being pivotally secured, at 22, the movable clamp being yieldingly drawn toward the fixed clamp by a coiled spring 24; said segmental clamps are adapted to clamp the flange of a chamber 25, and hold the same in position under said opening 20, for an obvious purpose. The side rods of the intermediate seat frame section 15 are so spaced that they are adapted to rest upon the grooved seats 11 of the supporting arms 10, as shown in Figs. 1 and 2, and the clamping levers 12 are so formed that when turned upward and inward onto the said side rods, they will bear upon the same. Said clamp-levers 12 are adapted to be tightly forced onto the said side rods or pipe sections, and to be securely clamped in working position by the clamping loops 13, which are then forced downward onto the upturned ends of said levers, and are held themselves in position by gravity and friction. When the folding seat is applied to the chair truck and secured thereto by the clamping devices, as just described, the lower forward projecting portion of the frame section 14 rests upon

the lower forwardly projecting portion of the truck frame, as shown in Fig. 1.

Working slidably on the sides of the back-forming frame section 16 are split collars 26, between the prongs of which are pivoted eccentric clamping levers 27, to the projecting arms of which are attached long coil springs 28. When the seat is applied to the truck the lower ends of these springs are detachably secured to the rear ends of the arm pieces 9, the said arm pieces being, as shown, notched at 29 to receive the headed lower ends of said springs. The weight of the said seat section 16, that is the back-forming frame section and corresponding portion of the cushion, keeps the springs 28 under more or less tension and when a person leans backward against the back of the seat this tension is of course increased, so that at all times the eccentric clamping levers 27 are caused to bite upon the side rods of the frame section 15 with sufficient force to prevent accidental slipping of the collars 26. By forcing the free ends of the clamping levers 27 backward toward the side rods of said frame section 15 the collars 26 are loosened so that the collars 26 may be freely slid upon the side rods of said frame section 16, and by such adjustments of the said collars the back of the seat may be adjusted and set at any desired angle. The springs 28 also give the seat a yielding back when applied as above described.

The numeral 30 indicates a supporting frame which is adapted to straddle a bed and to straddle or embrace the chair, including its portable truck. This supporting frame is also preferably of the character disclosed in my said U. S. Letters Patent above identified. The said frame is preferably made up of gas pipe sections suitably joined together.

The numeral 31 indicates a windlass shaft suitably journaled in the upper portion of the supporting frame 30 and provided with small laterally spaced windlass drums 32. To one end of the windlass shaft 31 is secured a bevel gear 33, that meshes with a bevel pinion 34, carried by a vertical shaft 35, mounted in suitable bearings on the frame 30 and provided at its lower end with a miter gear 36. The miter gear 36 meshes with a miter gear 37, carried by a crank 38, journaled into a bracket 39, on the frame 30. As is evident the windlass shaft 31 and its drums 32 may be rotated by rotation of the crank 38.

The upper ends of cables 40 are attached to the drums 32 and depend therefrom and at their lower ends are provided each with three branch cables 41, 42 and 43. The branch cables 41 are attached to the lower portion of the seat frame section 14, the lower ends of the cables 42 are attached to the respective frame joints 18, and the upper ends of the cables 43 are attached to the free ends of the respective clamping levers 27. The intermediate portions of the branch cables 41 are shown as attached by links 44 to the respective joints 17. Preferably the said branch cables are all detachably connected to the respective parts noted so that they may be removed from the seat when the latter is applied to its portable supporting truck.

As already stated, the truck with the applied seat is adapted to be run in between the pedestals of the supporting frame 30. This being done and the cables being attached, as shown in Figs. 1 and 4, the seat with the occupant thereof may be lifted off from the supporting truck by means of the windlass. The portable supporting frame is preferably mounted on casters so it may be readily moved from place to place, and so that the elevated seat with the occupant may be readily moved over a bed and then lowered on to the bed. This device is therefore well adapted for handling invalids, paralytics and other helpless patients.

It will be understood that the device described is capable of modification within the scope of my invention as herein set forth and claimed.

What I claim and desire to secure by Letters Patent of the United States is as follows:—

1. The combination with a truck having a frame formed with side rods, of a removable chair seat made up of jointed sections, including side rods, the intermediate members of which are adapted to be supported by the side rods of said truck frame, and pivoted clamping devices arranged to rigidly but detachably secure the intermediate side rods of said seat to the side rods of said truck frame, substantially as described.

2. The combination with a wheeled truck having the frame 1 provided with pedestals 8 rigidly secured at its intermediate side portions and provided at their upper ends with arm rests, of the detachable seat made up of three hinged sections 14, 15 and 16, supporting arms 10 rigidly secured to the sides of said truck frame adjacent to said pedestals 8 and adapted to support the side rods of said seat section 15, the clamping levers 12 pivoted to said arms 10 and adapted to clamp said side rods of the seat section 15 on to said arms 10, the sliding clamping loops 13 working on said pedestals 8 and adapted to engage the upturned ends of said clamping levers 12, and a connection between said arm rests 9 and the upper portion of said seat section 15, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ELMER E. HIGGINS.

Witnesses:
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MALIE HOEL.