

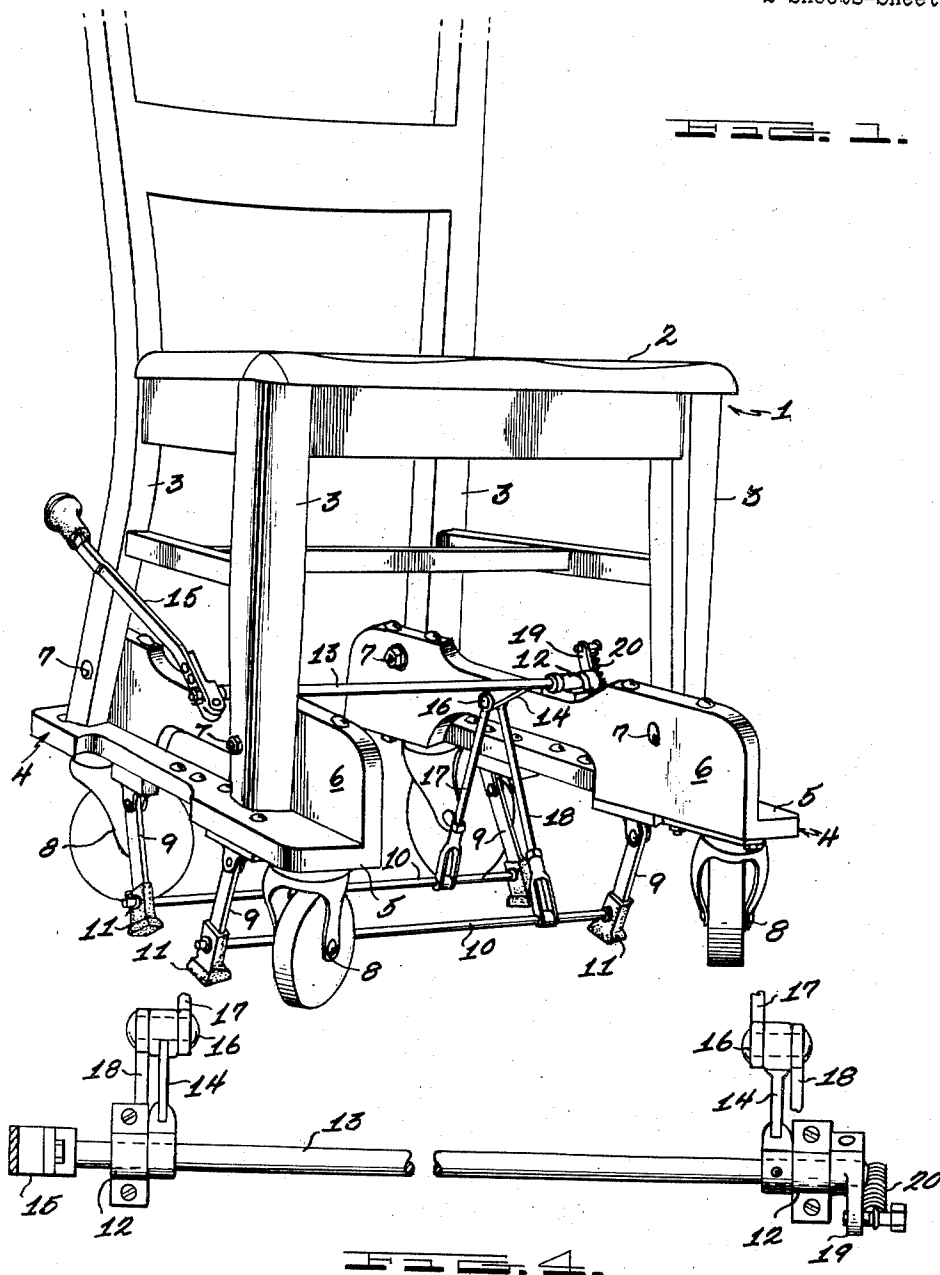
Jan. 9, 1951

T. PUDDISTER
INVALID CHAIR

2,537,909

Filed Dec. 1, 1949

2 Sheets-Sheet 1



INVENTOR.
THOMAS PUDDISTER.

BY *Stone, Boyden & Mack*
ATTORNEYS

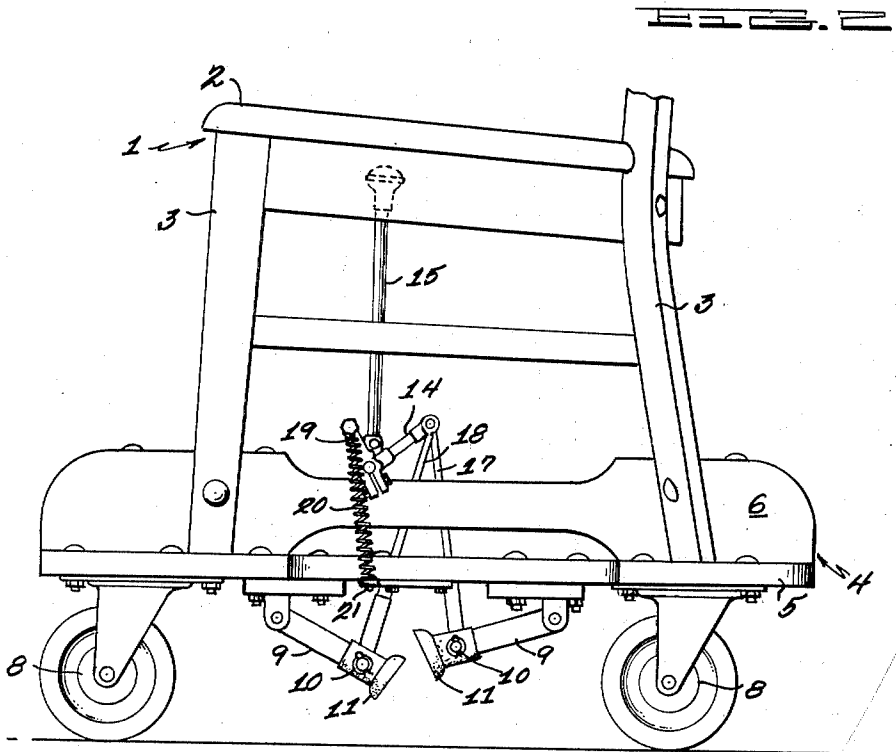
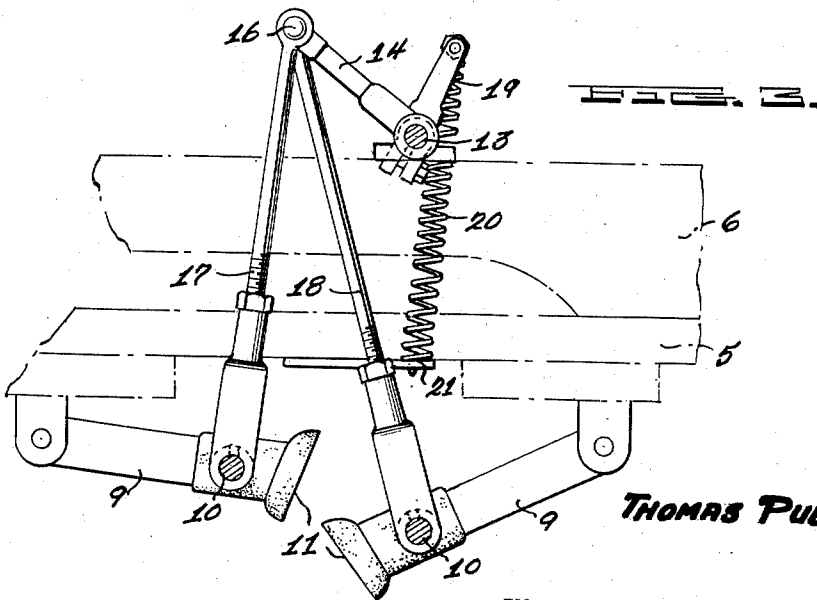
Jan. 9, 1951

T. PUDDISTER
INVALID CHAIR

2,537,909

Filed Dec. 1, 1949

2 Sheets-Sheet 2



INVENTOR.
THOMAS PUDDISTER.

BY *Stone, Boyden & Mack*
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,537,909

INVALID CHAIR

Thomas Puddester, Oregon, Wis.

Application December 1, 1949, Serial No. 130,481

4 Claims. (Cl. 155—30)

1

This invention relates to invalid chairs and particularly to that type of chair provided both with wheels, to facilitate rolling transport of the chair from place to place, and with friction levers selectively operable to maintain the chair in a fixed position.

The invention provides in such a chair simple and efficient operating means by which the occupant of the chair may control the positions of the friction levers.

The invention further provides a unique combination of a castered chair supporting frame and an easily operable friction locking structure, this combination being readily attachable as a conversion unit to a conventional chair.

In order that the invention may be understood in detail, reference is had to the accompanying drawings which form a part of this specification and wherein:

Fig. 1 is a view in perspective of an invalid chair constructed in accordance with the invention, the friction locking levers being shown in partially raised position;

Fig. 2 is a side elevation of the structure shown in Fig. 1, with the friction levers illustrated in raised position;

Fig. 3 is a fragmentary vertical elevation, on an enlarged scale, showing friction lever operating mechanism of the chair shown in Fig. 1; and

Fig. 4 is a detailed view in plan of a portion of the friction lever operating mechanism.

Referring now to the drawings in detail, and first to Fig. 1 thereof, the invention is shown as applied to a conventional straight-back chair 1 including seat 2 and depending legs 3. Located at the bottom of the leg structure of the chair are two identical frame members 4, each having a horizontal lower portion 5 and a vertical portion 6 extending upwardly therefrom. Vertical portions 6 of the frame members 4 each lie adjacent a side pair of legs of the chair, being secured to the legs 3 in any suitable manner, as by the bolts 7. Mounted on the lower surface of the horizontal portions 5 of the frame members 4 are four casters 8, each caster being positioned approximately at the foot of one of the legs 3 of the chair.

Pivoted to and depending from the lower surfaces of the horizontal portions of the frame members 4 are four levers 9 arranged in pairs as shown. The corresponding levers of each pair are located directly across the chair from each other and are rigidly connected to each other by the shafts 10. Each of the levers 9 are provided with a rubber or like friction foot 11. As

2

will be more clearly seen from Fig. 2, the effective length of the levers 9 is such that, though the feet 11 are maintained out of contact with the floor when the levers are raised, the feet are brought firmly into engagement with the floor when the levers are pivoted towards vertical position.

Extending between the frame members 4, and journaled on the portions 6, as at 12, is a rock shaft 13 carrying spaced crank arms 14. At one end, the rock shaft 13 is provided with a hand lever 15 which extends upwardly beside the chair. As best seen in Fig. 4, each crank arm 14 includes a pivot pin 16 to which is pivoted a pair of links 17 and 18 extending, as shown in Fig. 1, separately to the two shafts 10. The links 17 and 18 are pivoted to the two shafts 10 in any suitable manner. At its end opposite hand lever 15, the rock shaft 13 is provided with a crank arm 19 extending from the rock shaft on the side opposite the cranks 14. As seen in Figs. 2 and 3, the crank arm 19 is connected to one end of a tension spring 20 secured at the other end, as at 21, to portion 5 of the corresponding frame member 4. It will be seen that the spring 20 biases the rock shaft 13 in either direction, depending upon whether the tip of the crank arm 19 is in front of or behind the axis of the rock shaft.

If the hand lever 15 is moved to a vertical position, as shown in Fig. 2, the resulting rotation of the rock shaft 13 causes the crank arms 14 to swing upwardly, lifting the corresponding links 17 and 18 and thus swinging the levers 9 inwardly toward each other, so maintaining the friction feet 11 out of contact with the floor upon which the casters rest. When the hand lever 15 is in a vertical position, the crank arm 19 extends forwardly from the rock shaft 13, and the tension of spring 20 thus biases the rock shaft in a direction to maintain the friction feet 11 out of contact with the floor.

Swinging of the hand lever 15 in a rearward direction, to the position illustrated in Fig. 1, causes the cranks 14 to be turned downwardly. This movement, resulting in a downward movement of the links 17 and 18, causes the levers 9 to swing downwardly and outwardly until the friction feet 11 are wedged tightly against the floor. The amount of swing of the lever 15 required to wedge the friction feet 11 against the floor surface will, of course, depend upon the length of the levers 9 as compared with the height of their pivot points above the floor. When the hand lever 15 is in the position shown in Fig. 1, the tip of the crank 19 is located above

and behind the axis of the rock shaft 13, and tension spring 20 therefore tends to maintain the mechanism in the position shown until the lever 15 is again moved manually.

It will be noted from Fig. 1 that, when the levers 9 are lowered so that the friction feet 11 engage the floor, the levers 9 are still at an angle to the floor, since they are longer than the distance between the floor and the pivot points of the levers. Since the friction feet 11 cannot slide over the floor surface, the angular position of the levers as shown in Fig. 1 prevents forward motion of the chair since, for the chair to move forwardly, the rear pair of levers 9 would have to swing rearwardly through the vertical position. Because the levers 9 are longer than the distance between the floor and their pivot points, such action would necessitate that the entire chair be raised against the weight of the occupant before any forward movement of the chair could occur.

In the structure described, I have provided a conversion unit by means of which a conventional straight-back chair can be converted to an invalid chair. It will be noted that the frame members 4, their casters 2, the levers 9, the rock shaft 13 and its associated mechanism for operating the locking levers, and the hand lever 15, are all carried as a unit attachable to the chair by bolts 7 and removable as a unit at will. When the conversion unit is attached to the chair, rotation of the hand lever 15 to the rear will cause the levers 9 to be lowered until the friction feet 11 are wedged against the floor to hold the chair in a fixed position on the floor. Opposite movement of hand lever 15 raises the levers 9, releasing the chair for rolling motion.

It will be understood that the casters 2, the brackets or the like by which the levers 9 are pivoted to the support 5, and the specific configuration of the crank arms, are of conventional nature well known in the art, and that any suitable equivalent elements may be employed in their stead.

I claim:

1. In an invalid chair, a seat; a seat supporting structure comprising a plurality of legs depending from said seat and terminating at their lower ends in horizontal frame members; a plurality of spaced casters secured to said frame members to support said chair above a floor; a pair of levers pivoted to and depending from said frame members at opposite sides of the chair, said levers being provided at their lower ends with friction feet and being of sufficient length that said feet are brought into firm engagement with the floor supporting said casters when said levers are moved toward a vertical position; a rock shaft journaled in said seat supporting structure; a second shaft rigidly connecting said levers, a crank arm on said rock shaft, a link pivoted to said crank arm and said second shaft, and a hand lever by which said rock shaft may be rocked in either direction.

2. A unit for converting a conventional four-legged chair to an invalid chair which may be either free rolling or fixed, comprising a pair of horizontal frame members spaced apart the distance between the side pairs of legs of the chair to be converted, a rock shaft extending between said frame members and being journaled thereon, a pair of casters mounted on the bottom surface of each of said frame members, a lever pivoted to the bottom surface of each frame member between the casters thereon, said levers being provided at their lower ends with friction feet

and being of sufficient length to be brought into firm engagement with the floor on which said casters rest when the levers are moved toward a position at right angles to said frame members, a shaft rigidly connecting said levers, a crank arm carried by said rock shaft, a link pivoted to said crank arm and the shaft connecting said levers, a hand lever by which said rock shaft may be rocked in either direction, and means for securing said frame members to the feet of the chair to be converted.

3. A unit for converting a conventional four-legged chair to an invalid chair capable of rolling movement and also capable of being braked in place, comprising a pair of spaced frame members, each frame member including a horizontal portion and a vertical portion extending upwardly therefrom; a rock shaft extending between said frame members and being journaled thereon; a pair of casters mounted on the lower surface of the horizontal portion of each frame member; a lever pivoted to and depending from each frame member between the casters thereon, each lever being provided at its lower end with a friction foot and being of a length sufficient to cause said friction foot to be brought into firm engagement with the floor surface supporting the casters when said lever is swung towards a position at right angles to the frame member; a shaft rigidly connecting said levers; a crank carried by said rock shaft; a link pivoted to said crank and the shaft connecting said levers, a hand lever for rocking said rock shaft in either direction, and means for securing the vertical portion of each of said frame members to a pair of legs of the chair to be converted.

4. In an invalid chair, a seat; a seat supporting structure comprising a plurality of legs depending from said seat and terminating at their lower ends in horizontal frame members; a plurality of casters mounted on said frame members to support the same above a floor; a pair of levers depending from and pivoted to said frame members at opposite sides of said chair, the corresponding levers of each pair being located opposite each other and rigidly connected across said chair by a shaft, the levers of each pair being spaced from each other; a single rock shaft journaled in said seat supporting structure and extending transversely of said chair parallel to and above the shafts connecting said levers; a hand lever for rocking said rock shaft in either direction; a crank arm on said rock shaft, and a pair of links each pivoted to said crank arm and a separate one of the shafts connecting said levers, each of said levers being provided at its lower end with a friction foot and being of a length such that said foot is brought into firm engagement with the floor supporting said casters when the lever is pivoted toward a vertical position.

THOMAS PUDDISTER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
70 466,573	Platto	Jan. 5, 1892
468,022	Bray	Feb. 2, 1892
696,170	Gunn	Mar. 25, 1902
1,207,327	Reid	Dec. 5, 1916
1,414,238	Ward	Apr. 25, 1922