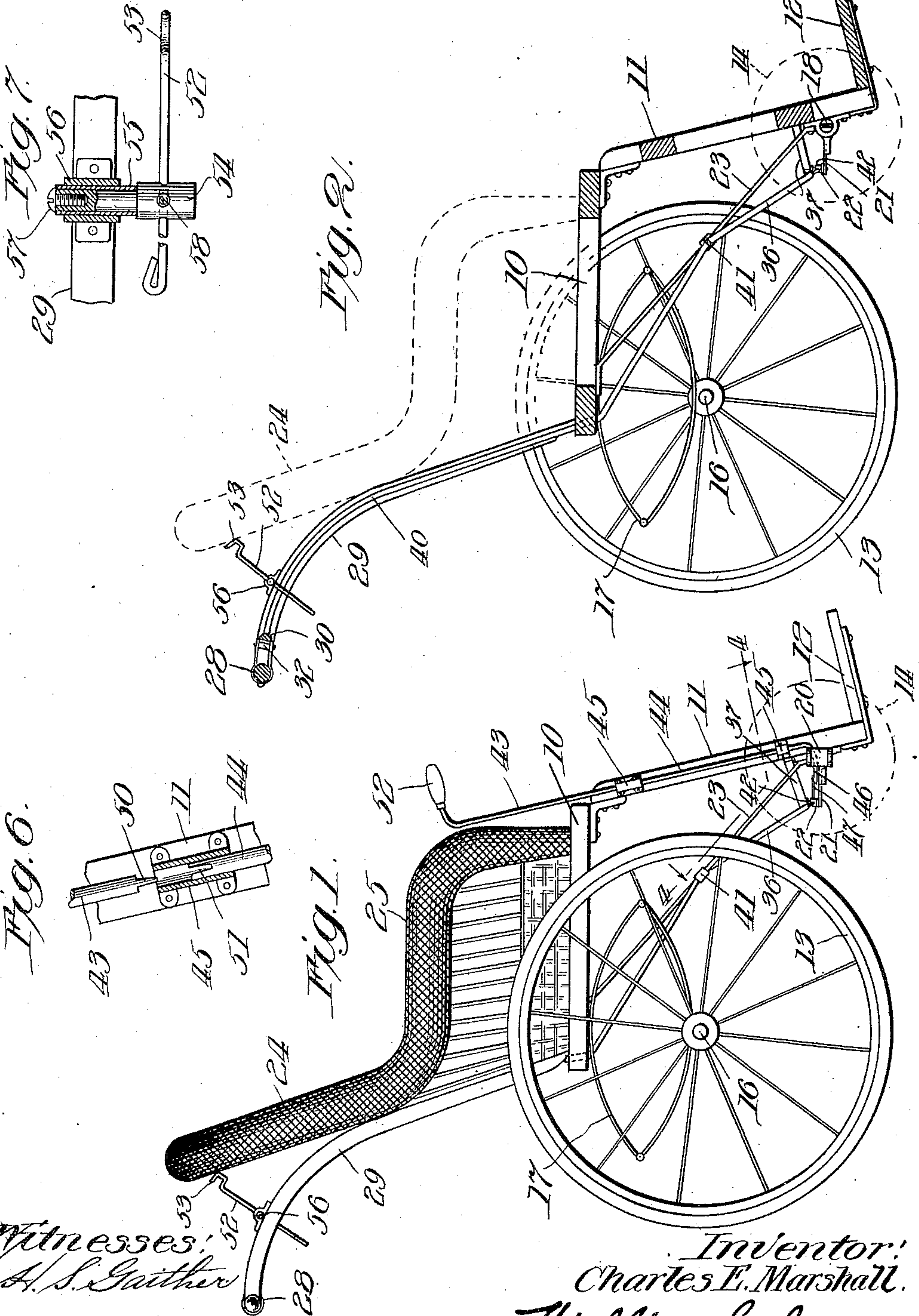


C. E. MARSHALL.
STEERING MECHANISM FOR ROLLER PUSH CHAIRS.
APPLICATION FILED APR. 13, 1910.

998,706.

Patented July 25, 1911.

2 SHEETS—SHEET 1.



Witnesses:
A. S. Guither
William Goldberger.

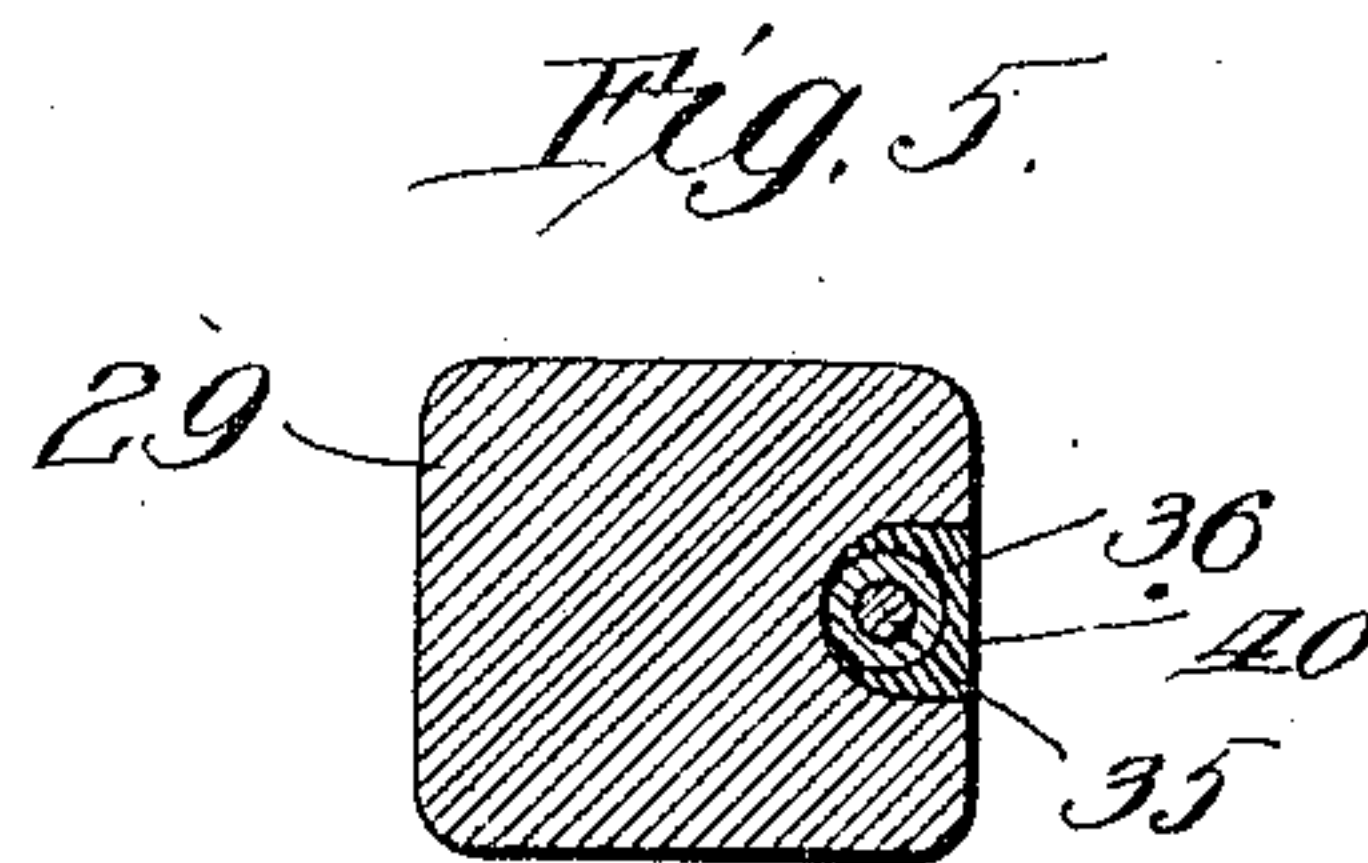
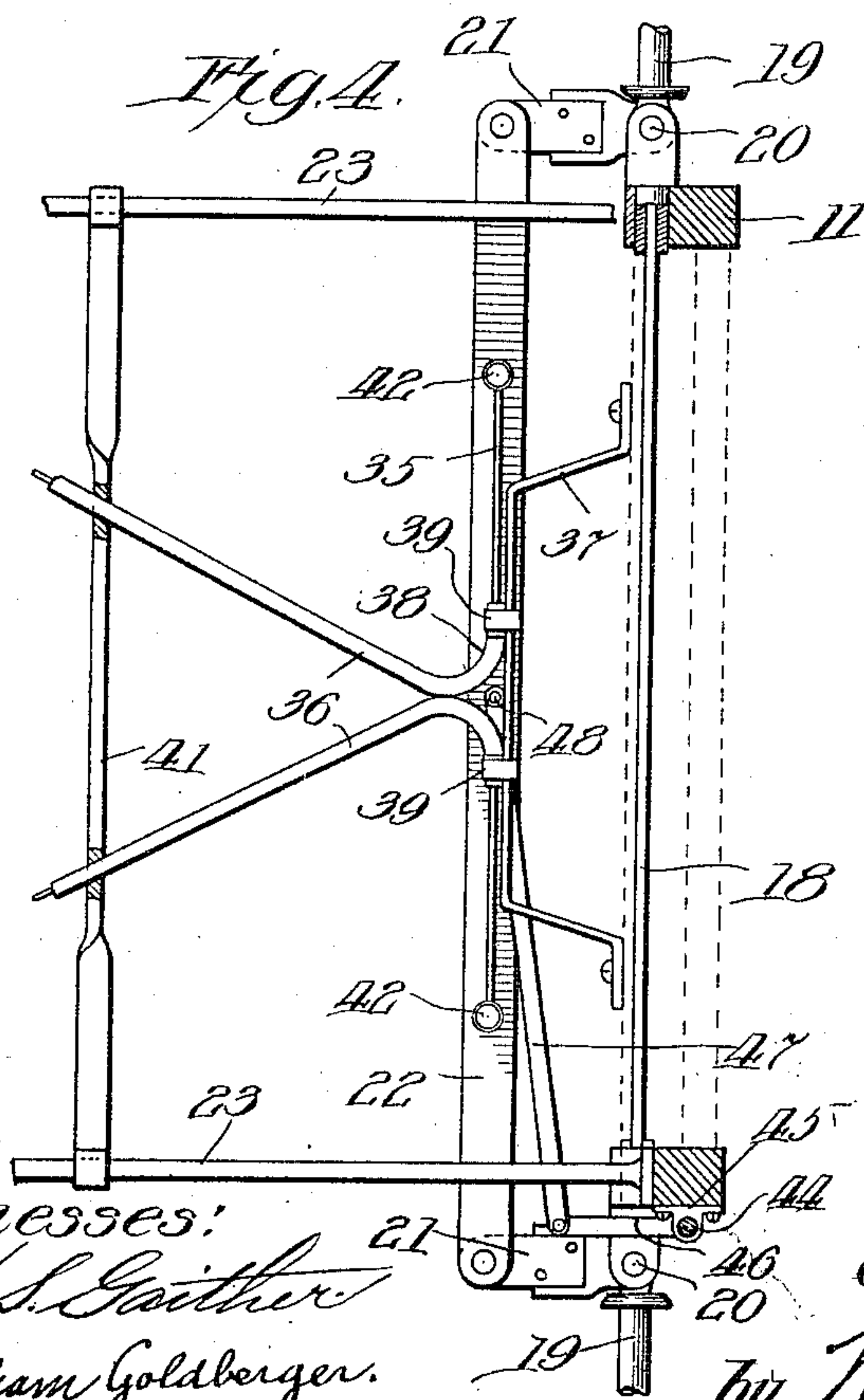
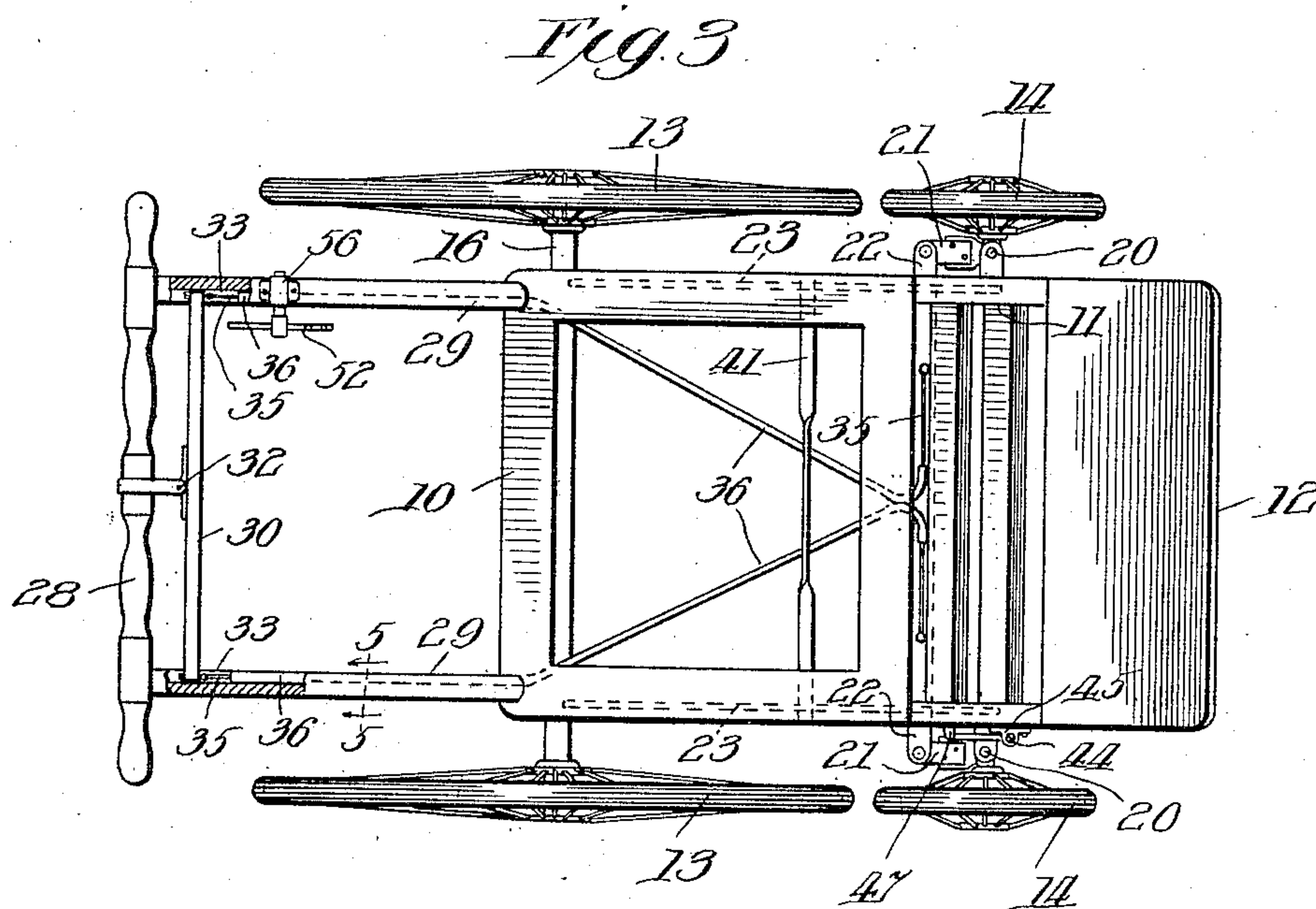
Inventor:
Charles E. Marshall.
by William H. Hall, atty

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UNITED STATES PATENT OFFICE.

CHARLES E. MARSHALL, OF CHICAGO, ILLINOIS.

STEERING MECHANISM FOR ROLLER PUSH-CHAIRS.

998,706.

Specification of Letters Patent.

Patented July 25, 1911.

Application filed April 13, 1910. Serial No. 555,289.

To all whom it may concern:

Be it known that I, CHARLES E. MARSHALL, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Steering Mechanism for Roller Push-Chairs; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to a steering mechanism for roller push chairs, and the invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

Among the objects of the invention is to provide a steering mechanism for such chairs, so arranged that the chair may be steered or directed either by the person pushing the chair or the occupant of the chair; to provide an exceedingly simple and effective steering mechanism so constructed and arranged that the chair may be steered or directed by simple and natural steering movements of the hand; to provide a steering mechanism which will be relatively inconspicuous when applied to the chair, and a mechanism in which the connections between the manually operable steering member and the steering axle will be partially concealed and out of the way so as not to be likely to catch upon and be interfered with by external objects or the movable parts of the chair.

As shown in the drawings, Figure 1 is a side elevation of a roller push chair with parts omitted, provided with my improved steering mechanism. Fig. 2 is a central section thereof. Fig. 3 is a top plan view of the chair with parts omitted. Fig. 4 is an enlarged horizontal section on the line 4—4 of Fig. 1. Fig. 5 is a detail of one of the push bar rails, on line 5—5 of Fig. 3. Fig. 6 is a detail of the occupant's steering bar. Fig. 7 is a detail of a latch device arranged to engage with the pusher steering bar to lock the steering mechanism inoperative.

The chair shown is a familiar form of push chair. The frame of the chair, comprising the seat member 10, the front drop member 11 and the foot board 12, is supported on supporting and steering wheels 13, 14, respectively, the former supporting

the rear part of the chair through the axle 16 and the springs 17, and the latter, or steering wheels 14, being mounted on a suitable form of steering axle. The steering axle herein shown, comprises a fixed central portion 18, that is attached in any suitable manner to the front drop member 11, and the pivoted spindles 19, 19 connected to the fixed portion by means of vertical pivots 20 to swing horizontally. Extending rearwardly from the inner ends of said spindle are lever arms 21, 21 which are connected by means of a horizontal link 22 arranged in rear of the axle and pivoted at its ends to said lever arms. The drop member 11 is braced from the seat member by the diagonally arranged braces 23. The body of the chair, consisting of the back 24 and sides 25, may be made of any preferred construction and arrangement.

The push bar 28 at the rear of the chair is connected to the rear side of the chair frame by the upwardly and rearwardly inclined rails 29, 29, said push bar extending beyond said rails and formed at its ends and also between the rails to provide hand holds for the attendant who pushes the chair.

30 designates a swinging steering bar which is located in front of the push bar 28 and is centrally pivoted to a bracket 32 carried by the push bar. The ends of said steering bar extend into grooves 33 formed in the inner sides of the side rails 29.

35 designates flexible strands, which may consist of fine piano wire or cable, that are attached at their rear ends to the ends of the steering bar within the grooves 33 and are led downwardly and forwardly through said grooves and beneath the seat frame and are attached at their forward ends to connecting link 22 of the pivoted spindles of the steering axle. Said strands constitute flexible connections by which steering motion of the steering bar is transmitted to the spindles of the front steering axle. The said flexible strands are contained in and are guided by tubular guide casings 36, 36 which lie for portions of their lengths in the grooves 33 of the push bar side rails and extend at their forward end beneath the seat member of the chair to a point adjacent the front steering axle. The said guide casings 36 are brought together at their front ends, as clearly shown in Figs. 3 and 4, and are supported at said front ends by means

of the bracket 37 which is attached to and extends rearwardly from the drop member 11 of the frame just above the front or steering axle. The said guide casings 36 may be supported in rear of their forward ends by means of a cross bar 41 which extends between and is attached at its ends to the braces 23. As herein shown said cross bar consists of a flat strip of metal and is twisted at its central portion to bring it in a plane at right angles to the casings 36 and is apertured for the passage of the casings therethrough. The forward ends of said guide casings are turned outwardly in opposite directions, as indicated at 38, (Fig. 4) and are fixed to the bracket by means of clips 39. The strands 35 are carried in opposite directions from the forward ends of said casings to binding screws 42 on the link 22 by which they are attached to said link. With the arrangement shown, it will be observed that when the steering bar is swung rearwardly at one end, the steering wheel 14 at the corresponding side of the chair will be swung rearwardly so as to guide or direct the chair in the direction in which the steering bar is swung, this being a natural movement which does not require to be acquired by practice. The groove 33 of the push bar side rails may be closed by a filling 40, as indicated in Fig. 5, so as to confine the casings 36 therein and to produce a neat and smooth finish of the parts.

Referring now to the devices whereby the occupant of the chair may steer the chair, the same are made as follows: Located at the front of the chair, and at the side of the drop member 11, is an upright steering shaft consisting of the separable upper and lower members 43, 44, respectively. Said lower member is mounted for rocking engagement in bearings 45, 45 carried by the drop member 11. Fixed to the lower end of the lower member of the steering shaft is a rearwardly directed lever arm 46, to the rear end of which is pivoted one end of a link 47, the other end of said link being pivotally connected at 48 to the link 22 which connects the steering spindles. The upper steering shaft member 43 is detachably connected to the lower member by means of a tapered angular tongue 50 on the lower end of the upper member which engages a like shaped notch 51 in the upper end of the lower member within the upper bearing 45, as shown in Fig. 6. The upper end of the upper steering shaft member is provided with a handle 52 in position to be grasped by the occupant in the chair. The chair is steered or guided by the occupant by turning the steering shaft in one direction or the other, and the arrangement is such that the chair is steered in the direction toward which the said steering shaft is turned. The separable arrangement of the occupant's steering shaft per-

mits the upper member of said shaft to be removed out of the way of the occupant when its use is not required. Any suitable provision may be made for carrying the removable part of the steering shaft on the chair.

Means are provided as follows for locking the steering mechanism from operation so as to direct the chair either straight ahead or in a predetermined curved path, as desired: 52 designates a latch consisting of a small rod which is provided at one end with a hook 53 adapted to engage over one end of the steering bar to hold it in a fixed position. Said latch is mounted between its ends on a rocking spindle 54, which latter is mounted at its reduced outer end to rock or rotate in a bearing bushing or sleeve 55 that is fixed to the side rail 29 of the push bar by means of the clip 56. The spindle is held in the bearing bushing by means of a screw 57 which extends into an axial screw-threaded opening in the spindle end, with its head overlapping the end of the bearing bushing. The said latch rod 52, as herein shown, extends through a transverse opening in the spindle 54 and is held therein by a set screw 58, said set screw permitting the latch to be longitudinally adjusted on the spindle so that the steering bar may be set to direct the chair either straight ahead or along a curved path of a given radius. The adjustment of the latch rod 52 in its support 54 enables the steering wheels to be accurately locked in non-steering position to direct the chair straight ahead.

My improvements may be used on roller push chairs for invalids' use or for pleasure uses, as out door chairs, exposition chairs and the like. The arrangement is such that the occupant may have full steering control of the chair, or such control may be wholly in the hands of the pusher, or both may operate the steering mechanism together. Also the chair may be run with the steering wheels fixed so that the chair may be directed straight ahead or in a given curved path. The chair being built on the lines of a go-cart, when the attendant tips it back sufficiently far to raise the front wheels off the ground, the steering mechanism is rendered inoperative. The steering attachment which I have applied to the chair adds little to the weight of the chair and the added parts are very inconspicuously disposed so that said parts do not attract attention. Moreover the attachments add no complications to the chair and do not substantially increase its cost over the ordinary swivel non-steering type of chair now in common use.

I claim as my invention:

1. A steering device for roller push chairs comprising, in combination, a chair frame, its supporting and steering wheels, a steering axle for the latter wheels, a push bar

and its side rails at the rear of said frame, a steering bar pivoted to said push bar, flexible strands connecting the ends of said steering bar with the steering axle, and tubular guide casings through which said strands extend and carried by said rails and the chair frame, said guide casings extending forwardly from the upper ends of said rails and beneath the seat and supported at their forward ends just in rear of the steering axle.

2. A steering device for roller push chairs comprising, in combination, a chair frame having a seat, its supporting and steering wheels, a steering axle for the latter wheels, a push bar and its grooved rails at the rear of the frame, a pivoted steering bar, the ends of which enter the grooves of said rails, tubular casings lying in the grooves of said rails, said casings extending forwardly from the lower ends of the rails beneath said seat and supported at their forward ends in rear of and adjacent to the steering axle, and flexible strands extending through said casings and connected at their rear ends with said steering bar and at their forward ends with the steering axle.

3. A steering mechanism for a roller push chair comprising, in combination, the chair frame, its supporting and steering wheels, a steering axle for the latter wheels comprising a fixed central part and pivoted spindles, a link connecting the spindles, a push bar and its side rails attached to the rear of the frame, a pivoted steering bar, flexible strands connecting the ends of said steering bar with said spindle connecting link, and tubular guide casings for said strands carried partially by said rails and converging toward the steering axle beneath the frame and supported at their forward ends in rear of said steering axle, said strands being extended in opposite directions from the forward

ends of said guide casings and attached to the spindle connecting link.

4. A steering mechanism for a roller push chair comprising, in combination, the chair frame, its supporting and steering wheels, a steering axle for the latter wheels comprising a fixed central part and pivoted spindles, a link connecting the spindles, a push bar and its side rails attached to the rear of the frame, a pivoted steering bar, flexible strands connecting the ends of said steering bar with said spindle connecting link, and tubular guide casings for said strands carried partially by said rails and converging toward the steering axle beneath the frame, and a centrally arranged bracket carried by the frame at the steering axle to which the forward ends of said guide casings are attached.

5. A steering device for roller push chairs comprising, in combination, a chair frame, its supporting and steering wheels, a steering axle for the latter wheels, a push bar at the rear of the frame, a pivoted steering bar, flexible strands connecting the ends of the steering bar with said steering axle, a locking latch pivoted to the side rail and provided with a hook for engagement with the steering bar to lock the steering mechanism in a fixed position, and means for effecting longitudinal adjustment of said latch, arranged to lock the steering mechanism to direct the chair straight ahead or in a fixed curved path.

In testimony, that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 30th day of March A. D. 1910.

CHARLES E. MARSHALL.

Witnesses:

W. L. HALL,
WILLIAM GOLDBERGER.