

1,235,973.

Patented Aug. 7, 1917.

Fig. 1.

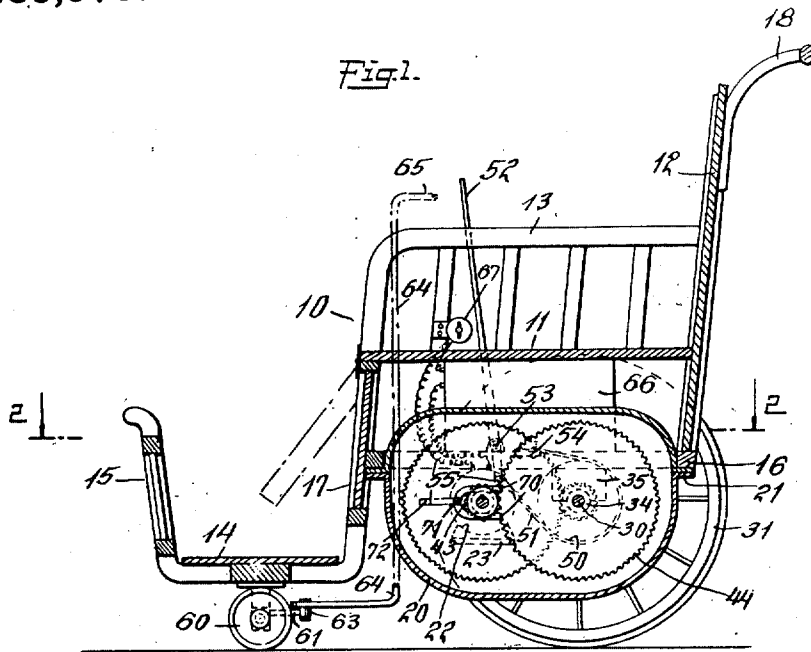


Fig. 2.

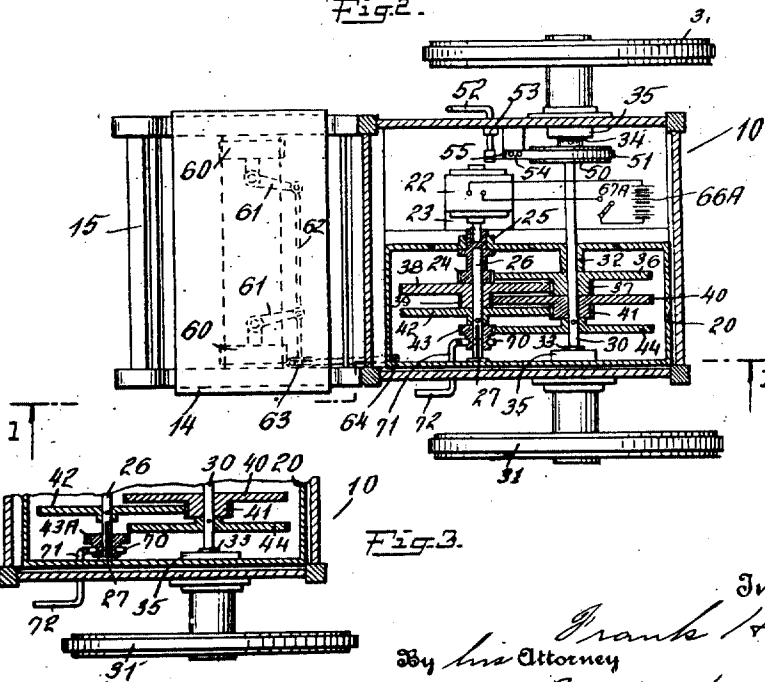
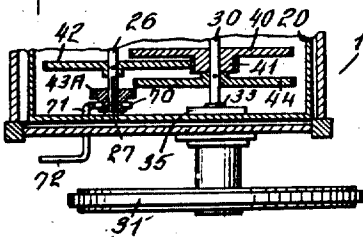


Fig. 3.



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WHEELED CHAIR.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK HEID, a citizen of the United States of America, and a resident of Tarrytown, county of Westchester, and State of New York, have invented certain new and useful Improvements in Wheeled Chairs, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

My invention relates to improvements in wheeled chairs, and its object is to provide a simple and inexpensive dirigible and mobile chair and to improve upon such structures of this kind as heretofore have been known. More specifically its object is to provide an apparatus of this kind which may be propelled by its occupant or pushed by an attendant in the usual ways, with self-contained motive power which may be connected or disconnected at will.

Furthermore, the object of this invention is to provide control devices of the motive power and steering mechanism of such simple construction that the apparatus may be used safely by a child.

In order that my invention may be thoroughly understood I will now proceed to describe the same in the following specification and then point out the novel features thereof in appended claims.

Referring to the drawings:

Figure 1 is a sectional side elevation of a chair made according to and embodying my invention.

Fig. 2 is a sectional plan view of the same chair, the section being taken on the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary plan view of a part of the transmission gearing showing the manner in which the motive power may be disconnected from the main wheels of the chair.

Like characters designate corresponding parts in all the figures.

10 designates the chair structure. This comprises a seat 11, back 12 and side arms 13. There is also a foot-rest 14 and a front or dash board 15 formed as parts of this structure. Under the seat is a substantially rectangular frame 16 which supports certain parts of the mechanism. 17 is a hinged cover for protecting the mechanism under the seat and for providing means of access thereto.

A handle 18 is affixed to the back 12 for

the purpose of facilitating pushing the chair about when this is desired.

20 is a metallic gear casing provided with a flange 21 by means of which it is affixed to the frame. An electric motor 22 is supported on a bracket 23 projecting from the side of this casing. The shaft of this motor is splined to the hub of a pinion 24 for which a bearing 25 is provided in the side casing 20 directly above the bracket 23. A shaft 26 is rotatively supported in the hub of pinion 24 and in a bearing 27 on the opposite side of the casing.

30 is the axle to which the main wheels 31 are affixed. Bearings 32—33 for this axle are provided in the casing and another bearing 34 is also provided for the axle at a spaced distance from bearing 32, and blocks 35 depending from the frame 16 rest upon the bearings 33 and 34, to thereby support the chair structure.

The pinion 24 is in mesh with a gear 36 loosely mounted on axle 30. The hub of gear 36 forms a pinion 37 which meshes with a gear 38 loosely mounted on shaft 26 and the hub of which similarly forms a pinion 39 in mesh with a gear 40 loose on axle 30. The pinion hub 41 of this latter gear is in mesh with a gear 42 which is affixed to the shaft 26. 43 is a pinion splined to rotate with shaft 26 but free to slide thereon. This pinion is in mesh with a gear 44 which is affixed to the wheel axle 30.

By this simple reducing gearing the rotation of the motor 22 is transmitted to the wheels 31 at a greatly reduced rate. A very small motor running at a high rate of speed is thus available to drive the chair, as the speed of propulsion of the chair is preferably very slow.

On the axle 30 is a brake sheave 50 over which is a strap brake 51. A brake lever 52 is pivoted at 53 to the frame 16. One end of the strap brake is affixed to the frame at 54 and its other end to the lower end of the brake lever at 55.

Under the foot rest 14 a pair of rollers 60 are mounted on vertically pivoted axles from which project arms 61. These are connected with a transverse rod 62 to which the lower end of a steering lever is connected by a slot and pin arrangement at 63. The steering lever has a vertical portion 64 and a handle 65.

66 designates a battery and 67 a switch for connecting and disconnecting the battery

with and from the motor 22. These parts are shown in Fig. 1 and are indicated diagrammatically at 66^A and 67^A in Fig. 2.

By the simple parts hereinbefore described the occupant of the chair may readily turn on or off the motive power, steer the chair wherever he desires it to go, or hold it in check or stop it by manipulating the brake.

As in case of the apparatus being used as an invalid's chair, it is often desirable to have it pushed about by an attendant, I have by a simple expedient so arranged the parts that the motive mechanism may be disconnected at will.

By referring again to the drawings, it may be seen that the pinion 43 which is splined to the shaft 26 is provided with a hub or collar in which is an annular groove. The forked ends 70 of an adjusting member fit into this groove. A portion 71 of this adjusting member passes through the casing 20 at right angles to the ends 70 and terminates in a handle 72. By pulling this adjusting member outward, the pinion 43 may be moved out of engagement with the gear 44 or into the position in which it is shown at 43^A in Fig. 3. Now the wheels 31 are free to rotate without affecting any part of the transmission gearing other than the gear 44 which is affixed to their axle.

The gearing is entirely inclosed by the casing 20 so that there is no chance of anyone being caught or injured thereby. At the same time the gearing is protected from dust and may be immersed in lubricant.

I have described a convenient embodiment of my invention but do not wish to limit myself to any specific form of construction, and in fact intend no limitations other than those imposed by the appended claims.

What I claim is:

1. A chair structure having a seat, a pair of main wheels therefor, a pair of steering rollers in front of said wheels, vertically pivoted supports for the rollers, a steering mechanism connected with said supports and having a handle near and at one side of the seat, a battery, an electric motor and connections therefor comprising a make and break switch near and at the other side of the seat, transmission reduction gearing comprising intermeshing spur gears between

the motor and the main wheels, said gearing being disposed under the seat comprising a motor driven shaft, a slidably splined pinion thereon, and a manually operable adjusting lever extending upwardly at one side of the seat for disconnecting said pinion from the other parts of the gearing.

2. A chair structure having a seat, a pair of main wheels therefor, an axle to which at least one of said wheels is affixed, a pair of steering rollers in front of said wheels, vertically pivoted supports for the rollers, a steering mechanism connected with said supports and having a handle near and at one side of the seat, a battery, an electric motor and connections therefor comprising a make and break switch near and at the other side of the seat, transmission reduction gearing comprising intermeshing spur gears between the motor and the main wheels, said gearing being disposed under the seat comprising a motor driven shaft, a slidably splined pinion thereon, a gear affixed to said axle with which said splined pinion is arranged to engage, and a manually operable adjusting lever extending upwardly at one side of the seat for moving said pinion on said shaft into and out of engagement with said gear.

3. A chair structure having a seat, a pair of main wheels therefor, a pair of steering rollers in front of said wheels, vertically pivoted supports for the rollers, a steering mechanism connected with said supports, and having a handle near the seat, a manually controlled brake, a battery, an electric motor and connections therefor comprising a switch near the seat, transmission reduction gearing comprising a motor driven shaft parallel with said axle, a plurality of intermeshing gears and pinions on said shaft and axle, one of said gears being affixed to the axle and one of said pinions being slidably splined to the shaft and arranged to engage with said gear affixed to the axle, and a manually operable adjusting member for moving said pinion on said shaft into and out of engagement with the gear affixed to the axle.

In witness whereof, I have hereunto set my hand this 20th day of February, 1917.

FRANK HEID.

Witness:

FRED'K A. RUSSELL, Jr.