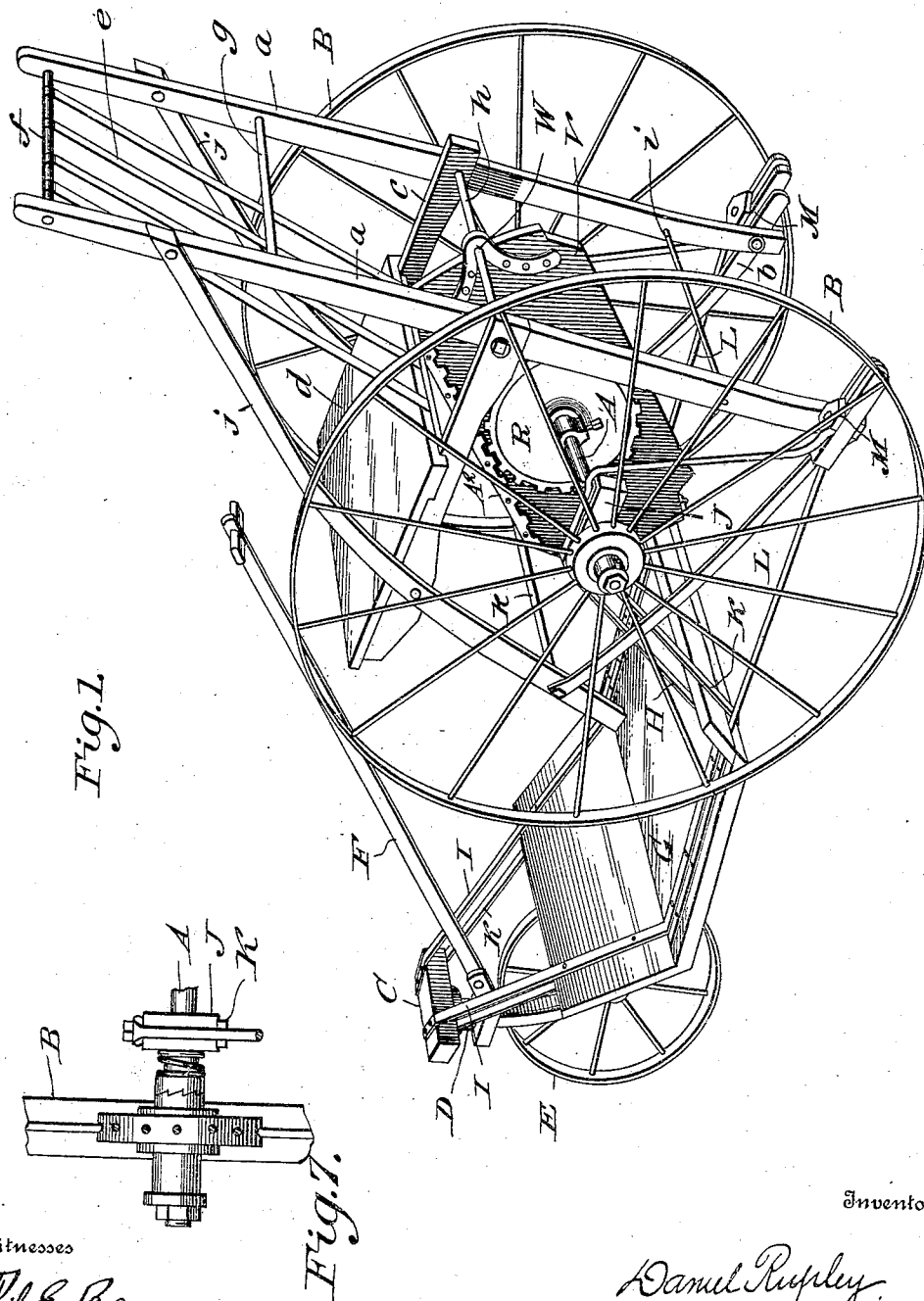


931,803.

D. RUPLEY.
INVALID CHAIR.
APPLICATION FILED MAR. 9, 1909.

Patented Aug. 24, 1909.
2 SHEETS—SHEET 1.



Witnesses

Phil. E. Barnes
J. J. Sheehy, Jr.

By

Daniel Rupley
James Sheehy
Attorney

931,803.

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2 SHEETS—SHEET 2.

Fig. 2.

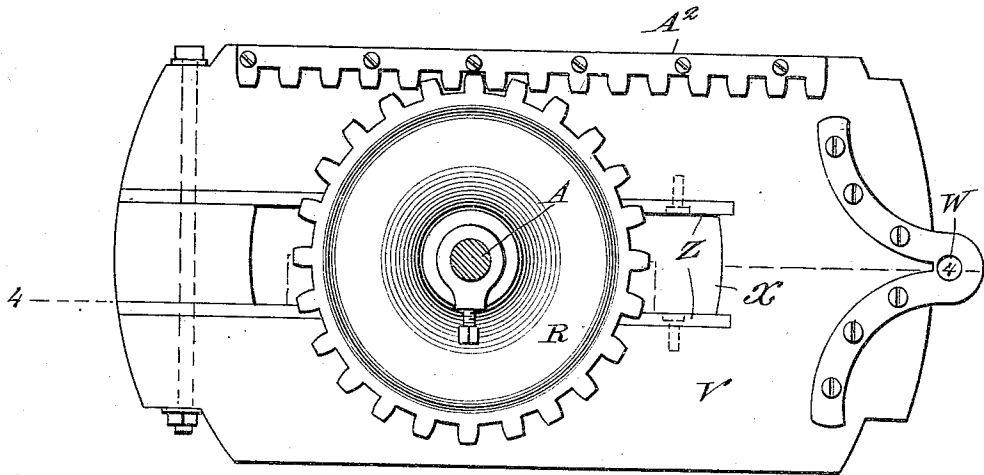


Fig. 3.

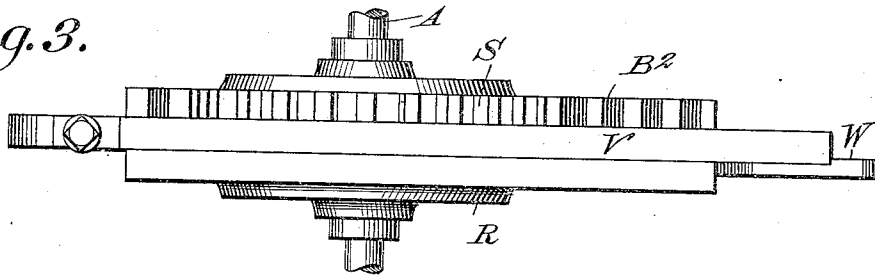


Fig. 4.

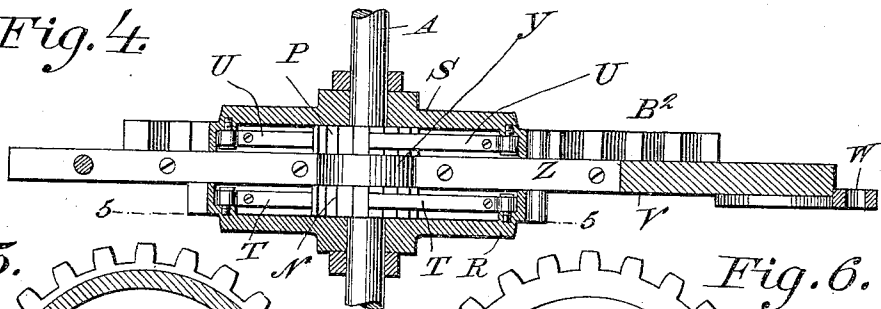


Fig. 5.

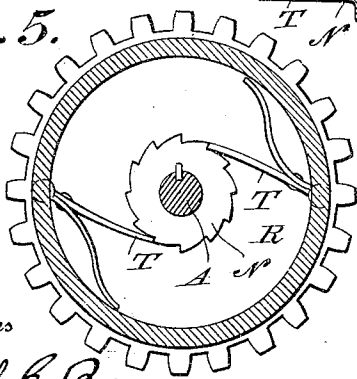
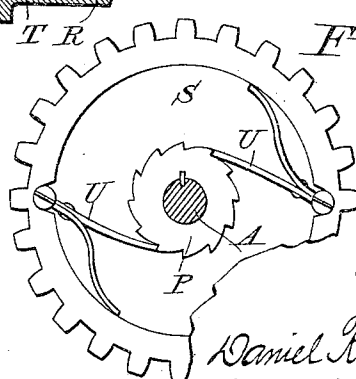


Fig. 6.



Witnesses

Phil. E. Barnes
J. J. Shuey Jr.

By

Inventor

Daniel Rupley
James Shuey
Attorney

UNITED STATES PATENT OFFICE.

DANIEL RUPLEY, OF SOUTH WHITLEY, INDIANA.

INVALID-CHAIR.

931,803.

Specification of Letters Patent. Patented Aug. 24, 1909.

Application filed March 9, 1909. Serial No. 482,289.

To all whom it may concern:

Be it known that I, DANIEL RUPLEY, citizen of the United States, residing at South Whitley, in the county of Whitley and State of Indiana, have invented new and useful Improvements in Invalid-Chairs, of which the following is a specification.

My invention has to do with velocipedes; and it contemplates the provision of a wheeled chair, designed more especially for the use of the crippled and sick, and embodying a simple, inexpensive and otherwise advantageous construction whereby the invalid is enabled to utilize forward and backward motions of his body to continuously propel the chair forwardly, and this with the expenditure of but little effort and without subjecting the invalid to shock and jar.

The invention will be fully understood from the following description and claims when the same are read in connection with the drawings, accompanying and forming part of this specification, in which:

Figure 1 is a perspective view of a wheeled chair constituting the best practical embodiment of my invention that I have as yet devised. Fig. 2 is an enlarged detail view illustrating the reciprocatory rack comprised in my improvements in side elevation, and also illustrating in section the drive-shaft of the chair as properly arranged relative to the said rack and one of the spur gears that co-operate with the rack. Fig. 3 is a plan view of the same. Fig. 4 is a detail transverse section taken in the plane indicated by the line 4—4 of Fig. 2. Fig. 5 is a sectional view taken in the plane indicated by the dotted line 5—5 of Fig. 4, illustrative of the arrangement of the left-hand spur gear and the pawls therein, relative to the left-hand ratchet on the drive-shaft. Fig. 6 is a view similar to Fig. 5, but showing the relative arrangement of the right-hand spur gear, its pawls, and the right-hand ratchet. Fig. 7 is a detail view of the clutch mechanism.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which:

A is the drive-shaft of my novel invalid chair. The said drive-shaft is equipped at its ends with supporting and propelling wheels B, of about the proportional size illustrated, and in the preferred embodiment of my invention ratchet connections are interposed between the drive-shaft and the wheels; the said ratchet connections being

so arranged that forward rotation of the shaft will be accompanied by corresponding motion of the wheels, and yet when desired the wheels may be rotated forwardly while the shaft is at rest. This will be appreciated as an important advantage when it is borne in mind that in some cases an invalid may desire to move the chair forwardly by hand power applied directly to the wheels B.

C is a head block disposed a suitable distance in front of the drive-shaft A.

D is a spindle disposed below and journaled in and suitably connected with the head block.

E is a caster or guide wheel mounted in and carried by the spindle D.

F is handle connected with and adapted to be used for rocking the spindle D about its axis.

G is a foot rest or platform, preferably of wood, arranged at a slight distance above the ground in order to enable an invalid to conveniently enter and leave the chair, and H H are hangers interposed between the platform or foot rest G and the drive-shaft A, while I I are hangers extending between and connecting the platform or foot rest G and the head block C.

As clearly shown in Fig. 1, the hangers H are fixedly connected with blocks J in which the drive-shaft A is journaled, and extend in front and in rear of the said drive-shaft. It will also be seen by reference to Fig. 1 that the forward portions of the hangers H are fixedly connected with the upper side of the platform G, and that straps K are connected with the blocks J, and extend below and are connected to the platform G, and extend upwardly from the said platform to the head block C to which they are also fixedly connected by bolts or any other means suitable to the purpose of my invention. The portions of the hangers H in rear of the drive-shaft A serve for the connection of brace rods L, which are interposed between the said portions and the platform G, and consequently it will be manifest that the platform G is strongly connected with both the head block C and the blocks J on the drive-shaft A and is fixed to the said elements C and J.

The connected portions of the hangers H and brace rods L are provided with bearings M for the pivotal connection of the oscillatory portion of my novel chair. This oscillatory portion may be of any construction consonant with the purposes of my inven-

tion, without involving departure from the scope of the same as claimed, though I prefer to have it comprise uprights *a* and braces *b* fixed with respect to each other and pivoted to the bearings *M*, arms *c* fixed to and reaching forwardly from the uprights *a*, a seat *d* superposed on the said arms, a back *e* interposed between and connected to the rear edge of the seat *d* and a cross-rod *f* carried by the uprights *a*, cross-rods *g*, *h*, and *i* extending between and connecting the uprights *a*, side bars *j* fixedly connected to the braces *b*, the arms *c* and the uprights *a*, and a cross-rod *k* extending between and connecting the braces *b* and the side bars *j* at one side of the chair with the corresponding elements of the oscillatory portion, at the opposite side of the chair.

It will be readily understood from the foregoing that the several parts comprised in the oscillatory element or portion of my improved chair are fixed with respect to each other, and that therefore the said parts are adapted to move as a unit or one piece.

My invention contemplates utilizing the backward and forward swinging movements of the oscillatory element or portion to continuously rotate the shaft *A* and the wheels *B* forwardly, and to the said end I equip the shaft *A* with ratchets *N* and *P*; the said ratchets being separated by an intervening space and being arranged at the left-hand side and the right-hand side, respectively, of the transverse median line or middle of the shaft *A*, and being also fixed to and adapted to rotate with the shaft. I also equip the shaft *A* with a left-hand spur gear *R* and a right-hand spur gear *S*; the spur gear *R* being chambered at its inner side to receive the ratchet *N*, and being provided with pivoted, spring-pressed pawls *T* for engaging the teeth of the ratchet *N*, while the spur gear *S* is chambered at its inner side to receive the ratchet *P* and is provided with pivoted, spring-backed pawls *U* for engaging the teeth of the ratchet *P*. I also provide in combination with the spur gears *R* and *S*, a reciprocatory driver *V*. This latter is pivotally connected at *W* with the cross-rod *h* of the oscillatory element, and is slotted, as indicated by *X*, to receive the supporting portion *Y* intermediate the two ratchets *N* and *P*.

By reference to the drawings, and particularly Figs. 2, 3 and 4, it will be noticed that wear plates *Z* are arranged above and below the slot *X* in position to move on the intermediate portion *Y*, and that the reciprocatory driver is provided above the spur gear *R* with a rack *A*², intermeshed therewith, and is also provided below the spur gear *S* with a rack *B*² which is intermeshed with said spur gear *S*. From this it will be readily understood that incidental to backward movement of the oscillatory element or portion of

the chair, the driver *V* through the medium of the rack *B*² and the spur gear *S* and its pawls, and the ratchet *P* will rotate the shaft *A* forwardly, while during the forward movement of the oscillatory element or portion and the corresponding movement of the driver, the said driver through the rack *A*², the spur gear *R*, and its pawls, and the ratchet *N* will rotate the shaft *A* forwardly, it being understood that the forward movement of the driver *V* will quickly succeed the rearward movement thereof, with the result that the forward propulsion of the chair will be steady and continuous and without appreciable interruption.

The rearward movement of the oscillatory element or portion is accomplished by the invalid rocking the said element back after the manner of a rocking chair, and the forward movement of said element or portion is brought about by the invalid relaxing his lower limbs and throwing his weight forward, and pulling himself and the oscillatory element forward by the handle *F* when it is desired to make the motion quicker.

It will be gathered from the foregoing that during the forward propulsion of the chair in the manner described, the invalid is enabled to conveniently guide the same through the medium of the handle *F* and the wheel *E*; and it will also be gathered that the oscillatory element or portion is adapted to swing backwardly and forwardly in a general manner, with the result that the invalid is not subjected to shock or jar. It will further be gathered that the construction of the chair as a whole is simple and inexpensive, and that it is well adapted to withstand the usage to which wheeled invalid chairs are ordinarily subjected.

As before stated, the construction herein illustrated and described constitutes the best practical embodiment of my invention of which I am cognizant, but it is obvious that in the future practice of the invention such changes or modifications may be made as fairly fall within the scope of my invention as defined in the claims appended.

Having described my invention, what I claim and desire to secure by Letters-Patent, is:

1. In an invalid chair, the combination of a drive-shaft equipped with supporting and propelling wheels and also equipped with spaced ratchets, a guide wheel, means for manipulating the same, a platform arranged adjacent the ground and supported at its forward end by the guide wheel, hangers connecting said platform with the drive-shaft, hangers connected with the platform and drive-shaft and arranged in rear of and below the latter, an oscillatory element comprising uprights pivotally connected at their lower ends with the rear ends of the latter hangers, arms connected to and reaching

forwardly from the uprights at a point above the drive-shaft, a seat arranged on said arms and disposed above and in front of the drive-shaft, side bars connected to the upper portions of the uprights and the forward portions of the arms and extending below the latter, and braces connecting the lower portions of said side bars and the lower ends of the uprights, a cross rod extending between the uprights, a reciprocatory driver connected to said cross rod and having a slot receiving the portion of the shaft between the ratchets and also having at one side an upper rack and at its other side a lower rack, and spur gears loose on the shaft, at opposite sides of the driver, and intermeshed with the racks and having pawls for engaging the ratchets.

2. In an invalid chair, the combination of a drive-shaft equipped with supporting and propelling wheels, a guide wheel, means for manipulating the same, a platform arranged adjacent the ground and supported at its forward end by the guide wheel, hangers connecting said platform with the drive-shaft, hangers connected with the platform

and drive-shaft and extending to points in rear of and below the latter, an oscillatory element comprising uprights pivotally connected at their lower ends with the rear ends of the latter hangers and extending above the drive-shaft, arms connected to and reaching forwardly from the uprights at a point above the drive-shaft, a seat arranged on said arms and disposed above and in front of the drive-shaft, side bars connected to the upper portions of the uprights and the forward portions of the arms and extending below the latter, and braces connecting the lower portions of said side bars and the lower ends of the uprights, and means connected with the drive-shaft and the oscillatory element and operative by backward and forward movements of the latter to rotate the drive-shaft.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

DANIEL RUPLEY.

Witnesses:

HENRY R. BECK,
FRANCIS B. MOE.