M. A. DOTY.

FOLDING INVALID CHAIR.

APPLICATION FILED JAN. 13, 1917.

1,289,701.

Patented Dec. 31, 1918.

3 SHEETS—SHEET 1.

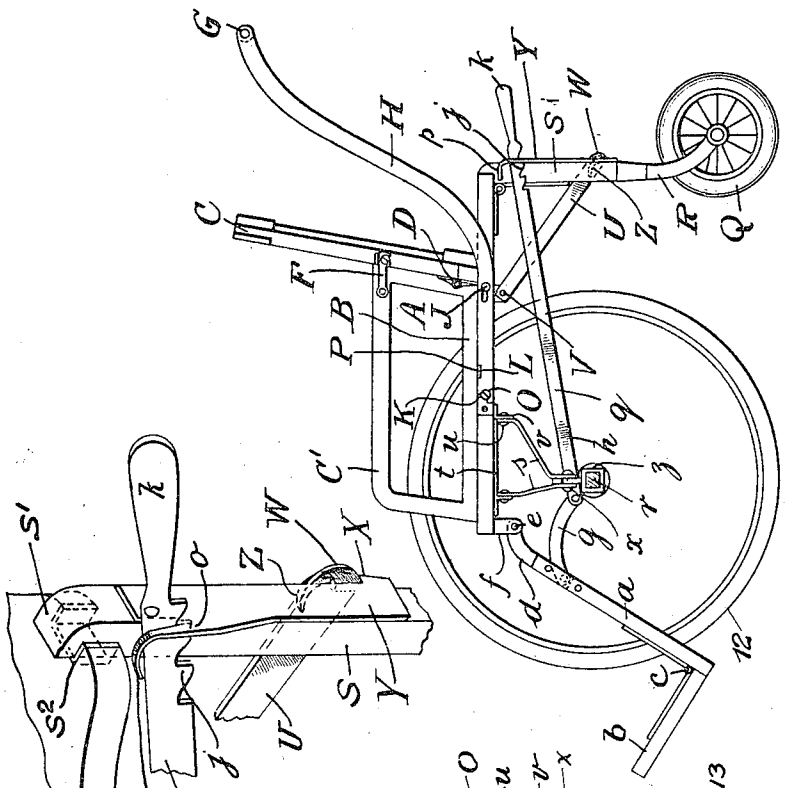


Fig. 1

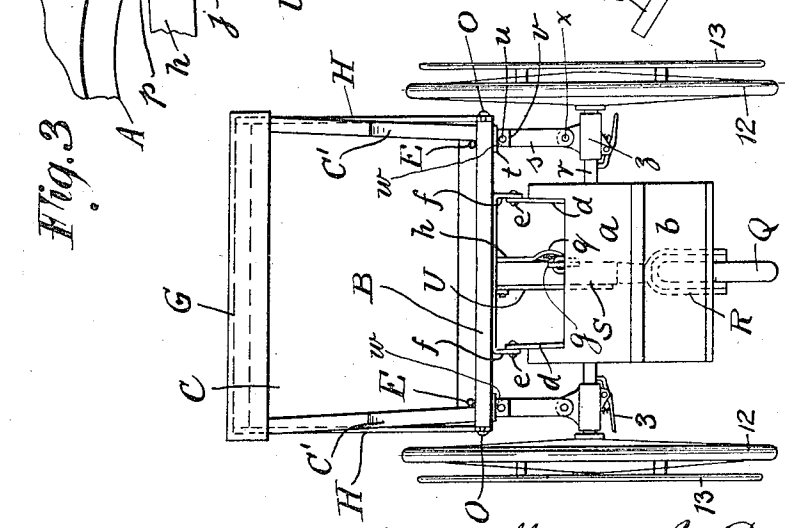


Fig. 2

Fig. 3

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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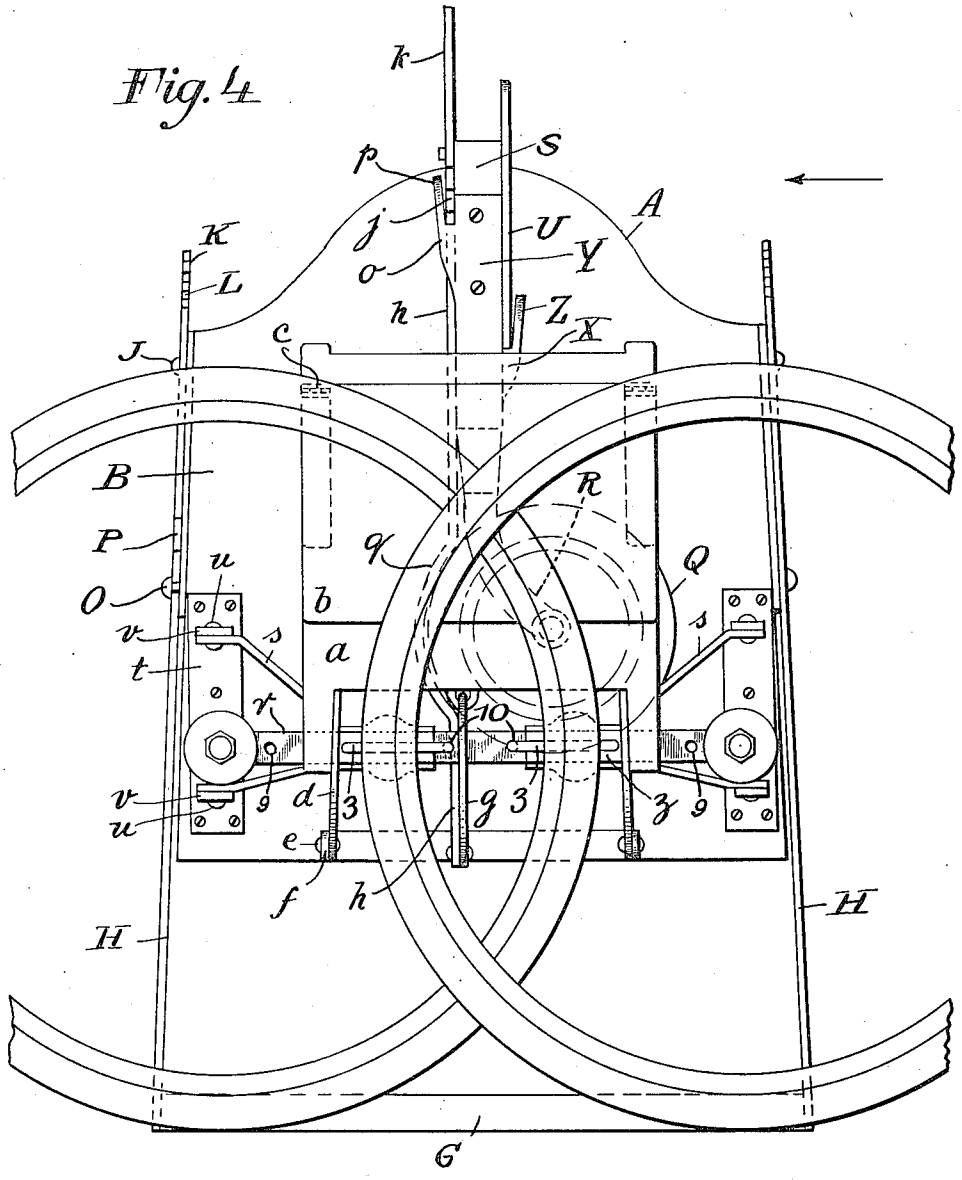
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3 SHEETS—SHEET 2.

Fig. 4



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3 SHEETS—SHEET 3.

Fig. 5

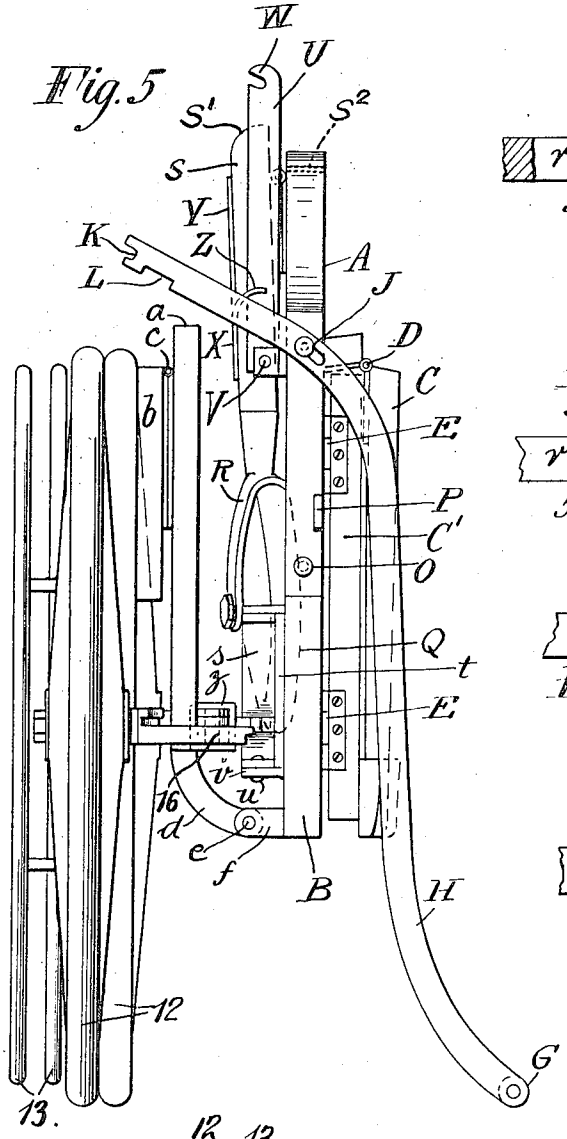


Fig. 6

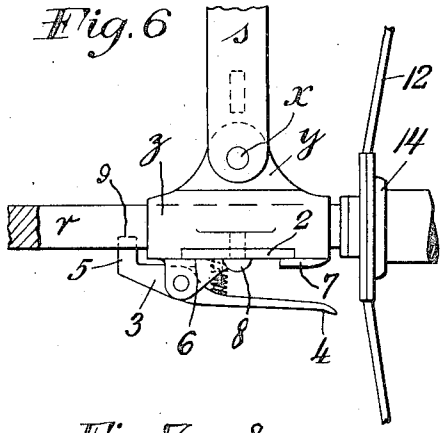
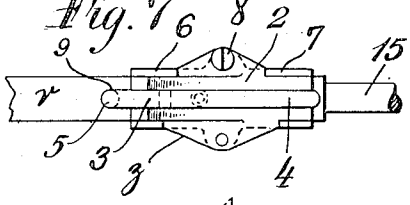


Fig. 7



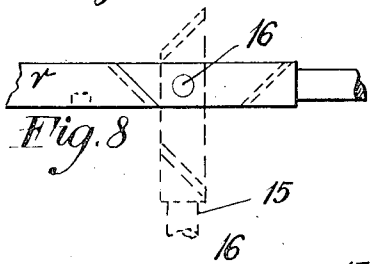


Fig. 8

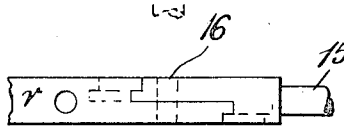


Fig. 9

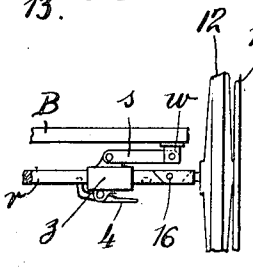


Fig. 10

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UNITED STATES PATENT OFFICE.

MARION A. DOTY, OF HARTWOOD, NEW YORK.

FOLDING INVALID-CHAIR.

1,289,701. Specification of Letters Patent. Patented Dec. 31, 1918.

Application filed January 13, 1917. Serial No. 142,195.

To all whom it may concern:

Be it known that I, MARION A. DOTY, a citizen of the United States, and a resident of Hartwood, Sullivan county, State of New York, have invented certain new and useful Improvements in Folding Invalid-Chairs, of which the following is a specification accompanied by drawings.

This invention relates to folding or collapsible invalid chairs of the type adapted to be carried from place to place in traveling. The objects of the invention are to simplify and lighten the construction of such chairs, while at the same time producing a wheeled chair in which all parts are foldable upon the body or seat. According to my improved construction, the parts of the chair, including the arms, back, push bar or hand rail, rear wheel standard, foot-rest, main axle and side wheels, may all be folded quickly and conveniently into as small compass as possible, ready for transportation.

Preferably the arms, back and push bar are foldable upon the top of the seat, while the remaining parts are foldable beneath the seat. The side wheels are so connected to the axle that they are foldable or collapsible inwardly beneath the seat and lie when folded in a general direction substantially parallel to the seat, so that the folded or collapsed chair forms a substantially flat package and thus occupies the minimum of space, and is of convenient form for transportation in an automobile for instance.

Further objects of the invention will hereinafter appear, and to all these ends, the invention consists of the combinations of elements and features of construction substantially as hereinafter described and claimed.

In the drawings, which illustrate the preferred form of the invention,

Figure 1 is a side view of the chair;

Fig. 2 is a front view of the chair;

Fig. 3 is an enlarged detail perspective view partly broken away of a portion of the post for the rear wheel, showing certain adjustments;

Fig. 4 is a side view of the chair folded;

Fig. 5 is an end view of the chair folded;

Fig. 6 is an enlarged detail side elevation, partly broken away, showing the foldable connections for the axle;

Fig. 7 is a bottom plan view of a portion of Fig. 6;

Fig. 8 is a detail front elevation of a portion of the foldable axle;

Fig. 9 is a bottom plan view of Fig. 8, with the portions of the axle in alinement, and

Fig. 10 is a detail view partly broken away with the axle folded beneath the seat of the chair.

Referring to the drawings, A represents the body of the chair having the seat B, which may be of wicker or other suitable material. The back C is suitably hinged to the body A by the hinges D, and the sides or arms C′ are hinged to the body by the hinges E and adapted to be connected to the back by the hooks F when the chair is in use. In order to fold the sides and back, the hooks F are released, the sides are folded down on the seat, and the back is folded down over the sides.

The push bar or hand rail G for pushing the chair is provided with the arms H pivoted to the body at J by a pin and slot connection, which affords a slight longitudinal movement of the arms H for releasing and locking them. The ends of the arms H are cut away or recessed at K and notched at L to enable said arms to coöperate with the pins O and lugs P on the body when the push bar is in operative position, as shown in Fig. 1, in which case the ends of the arms H engage the pins O and the notches L engage the lugs P. By pressing upwardly on the push bar G, at the same time withdrawing the arms H rearwardly, the ends of the arms are released from the pins O and lugs P, to permit the push bar G and arms H to be folded downwardly over the body of the chair, as illustrated in Figs. 4 and 5. When the chair is to be used, the push bar G and arms H are swung into operative position, as shown in Fig. 1, and locked by means of the pins O and lugs P.

The small rear wheel Q is conveniently mounted in the fork R carried by the rear standard S, which in turn is suitably pivoted to the body A as by means of the hinge teeth, so that the standard S and wheel Q may be folded inwardly beneath the body A, as illustrated in Figs. 4 and 5. Suitable means are provided for maintaining the rear standard S in upright position when the chair is in operation, and as shown, the upper end S′ of the standard bears against a buffer plate S^2 secured in a recess in the rear of the body A, as indicated in Fig. 3, and a strut U pivoted at V underneath the body is provided with a notched end W, which engages an offset portion X of the bearing plate Y

secured to the standard S. A curved guard Z preferably extends at the side of the strut U. The strut U serves to hold and bears the standard S.

The foot-rest, as shown, consists of the back portion *a* and the foot portion *b* hinged to the back portion *a* as by means of a hinge *c*. The back portion *a* or body is provided with the arms *d* pivoted at *e* to the ears *f* secured to the body A of the chair. The back or body portion *a* of the foot rest is provided with the link *g* pivoted to the lever *h* having the notches *j* and the handle *k*, by means of which connections the foot rest is adjusted and these connections permit the foot rest to be folded under the body A of the chair. The notches *j* coöperate with an offset portion *o* on the plate Y and a curved guard or finger *p* extends from said plate Y at the side of the lever *h*. The lever *h* is provided with a curved or bowed portion *q* which conforms to the wheel Q and permits the lever *h* and rear wheel Q to lie side by side underneath the body A of the chair when the parts are folded. In order to fold the foot-rest, the notches *j* of the lever *h* are released from the plate Y and the lever *h* is drawn rearwardly, so that the back portion *a* and foot portion *b* of the foot-rest may be folded underneath the body of the chair.

In my preferred construction, however, the axle *r* is first folded or collapsed underneath the body A of the chair, and I will now describe the mechanical construction and arrangement of the axle *r* and connected parts, as this forms one of the important features of my invention.

Underneath the body A of the chair are pivoted the forked standards or brackets *s*. Preferably plates *t* are fastened underneath the body A and the arms of the forked brackets *s* are pivoted at *u* to lugs *v* on said plates *t*. The brackets *s* swing inwardly and outwardly on the pivots *u*, but cannot swing upwardly beyond the vertical, as the ends of the arms *s* bear underneath the plate *t*. As shown in Fig. 2, the inner corners *w* of the inner ends of the arms *s* are cut away or beveled to permit the arms to swing inwardly, as indicated in Fig. 10. The outer ends of the forked brackets *s* are pivoted at *x* to the lugs *y* on the sliding boxes or sleeves *z* which inclose and slide upon the axle *r*. These sliding boxes or sleeves may be of any suitable construction, but I prefer to form them in two parts, comprising the main box *z* and the cap or plate 2, which is adapted to be secured thereto and is provided with the spring pressed latch 3, having the thumb piece 4 and the hook 5, as shown in detail in Fig. 6. The plate or cap 2 is adapted to be slipped under the lugs 6 and 7 on the box *z* and held in place as by means of the screw 8, so that the caps or plates 2 on the box *z* are interchangeable. The hooked ends 5 of the latches 3 are adapted to coöperate with the recesses 9 in the axle *r* when the axle is in extended or operative position, as shown in Figs. 1 and 2, but by releasing the latches 3, from the apertures 9, the boxes *z* may be slid inwardly toward the middle portion of the axle *r* at the same time that the forked arms or brackets *s* are swung inwardly toward each other and toward the body A of the chair, as shown in detail in Fig. 10. The axle *r* is thus collapsed close to the body A and in final folded position, the latches 3, as shown in Fig. 4, are adapted to coöperate with apertures 10 at the center portion of the axle *r* and thus hold the parts in locked and folded position. The main side wheels 12 are provided with the usual hand rails 13 and the hubs 14 of the side wheels are carried by the end sections 15 of the axle *r* which are pivoted or jointed to the axle by means of the pivot pin 16. The end sections 15 form beveled and dove-tailed connections with the main portion of the axle *r*, so that when the end sections are in alinement with the main portion of the axle, as shown in Figs. 1, 2 and 9, the boxes *z* may slide over the dove-tailed joints at the pivotal connection 16 and lock the parts in operative position. When the boxes *z* and forked arms *s* are in the position indicated in Fig. 10, or in Figs. 4 and 5, the jointed sections 15 of the axle carrying the wheels 12 are capable of being swung on their pivots, thus carrying the wheels into folded position in a general direction, substantially parallel to the body A of the chair. It is understood that the foot-rest *a*—*b* is first folded inwardly over the axle *r* as shown in Figs. 4 and 5, before the wheels 12 are folded into collapsed position, so that all the parts occupy as small a compass as possible. After the parts have been folded into the positions indicated in Figs. 4 and 5, it will be seen that the chair as collapsed stands upon the wheels and the push bar G, and may be picked up and carried as desired.

In reassembling the chair, and unfolding it into operative position, the wheels are first opened out, then the latches 3 are released from their inward position and the boxes *z* are slid outwardly, at the same time opening out the forked brackets *s* until the axle *r* is raised into operative position and the boxes *z* are locked in position over the jointed connection at the ends of the axle. The foot rest is then unfolded and pushed forward into adjusted position, by means of the levers *h*, and notches *j*, and the rear standard S carrying the rear wheel Q is adjusted in upright position, as shown in Fig. 1. The back C and the sides or arms C′ are raised and fastened in position by means of the

hooks F. The push bar G and arms H connected thereto are thus swung into position about the pivot pins J and the ends of the arms H are locked on the pins O and lugs P, and the chair is then ready for use. As heretofore described, in collapsing or folding the chair, the parts are folded in reverse direction, that is, first the sides or arms C′ and back C are folded, then the push bars G and arms H, so that the parts on top of the seat are first folded. It will then be convenient to let the chair rest on the push bar G, while the rear standard S is folded inwardly, and the axle r is collapsed. Then the foot rest is folded inwardly and the side wheels are folded in upon the back rest.

I am not to be understood as limiting the invention to the details of mechanical construction shown and described, since obviously mechanical equivalents may be found for many of such parts, which will come within the scope of the claims.

I claim and desire to obtain by Letters Patent the following:

1. In a folding chair, the combination with the body, of an axle having jointed end sections forming bearings for the side wheels, standards pivoted to the body and slidably connected to the axle, affording provision for folding or collapsing the axle toward the body, a standard for the rear wheel pivoted to the body and foldable beneath the body, the side wheels also being foldable upon the body over the rear standard and wheel.

2. In a folding chair, the combination with the body, of an axle having jointed end sections forming bearings for the side wheels, standards pivoted to the body and slidably connected to the axle, affording provision for folding or collapsing the axle toward the body, a standard for the rear wheel pivoted to the body and foldable beneath the body, and a foot-rest pivoted to the body and foldable over the axle and rear wheel, the side wheels also being foldable upon the body over the foot-rest and rear wheel.

3. In a folding chair, the combination with the body forming a seat, of sides, back and push bar pivoted thereto and foldable upon the top of the seat, a rear wheel standard and a foot-rest pivoted to the body and foldable beneath the seat, an axle adapted to be collapsed or folded beneath the seat, and main side wheels also foldable underneath the seat over the rear standard, axle and foot-rest.

4. In a folding chair, the combination with the body, of an axle having jointed end sections forming bearings for the side wheels, standards pivotally supported beneath the body and arranged to fold inwardly, sleeves sliding on the axle and pivotally supported at the outer ends of said standards and latches carried by the sleeves for locking the sleeves to the axle when the sleeves are over the joints of the axle.

5. In a folding chair, the combination with the body, of an axle having jointed end sections forming bearings for the side wheels, standards pivotally supported beneath the body and arranged to fold inwardly, sleeves sliding on the axle and pivotally supported at the outer ends of said standards and latches carried by the sleeves for locking the sleeves to the axle when the sleeves are over the joints of the axle, said latches also being adapted to lock the sleeves to the axle when the axle is folded or collapsed against the body.

6. In a folding chair, the combination with the body, of an axle having jointed end sections forming bearings for the side wheels, standards pivotally supported beneath the body and arranged to fold inwardly, sleeves sliding on the axle and pivotally supported at the outer ends of said standards, and latches carried by the sleeves for locking the sleeves to the axle when the sleeves are over the joints of the axle, said latches also being adapted to lock the sleeves to the axle when the axle is folded or collapsed against the body, the joints of the axle affording means for folding the wheels inwardly toward the axle and body when the sleeves are moved toward the middle portion of the axle.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

MARION A. DOTY.

Witnesses:
CLARK LANGAN,
JAMES LANGAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."