

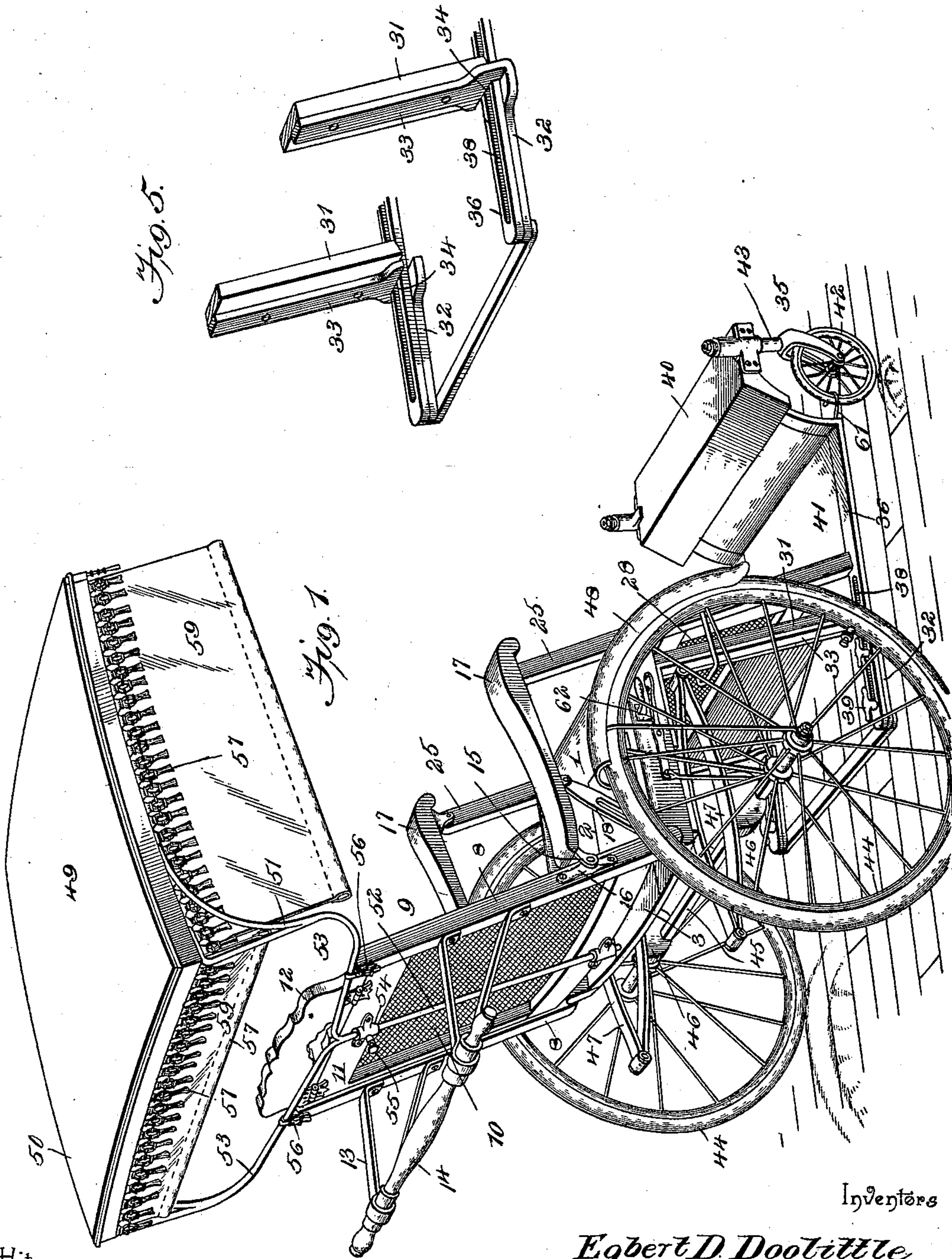
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3 Sheets—Sheet 1.

E. D. DOOLITTLE & I. W. SCHMIDT.  
INVALID CHAIR.

No. 539,041.

Patented May 14, 1895.



Witnesses

*John C. Shaw*  
*E. D. Doolittle*

By their Attorneys, *Ida W. Schmidt,*

*Chas. H. Snow & Co.*

Inventors

*Egbert D. Doolittle*



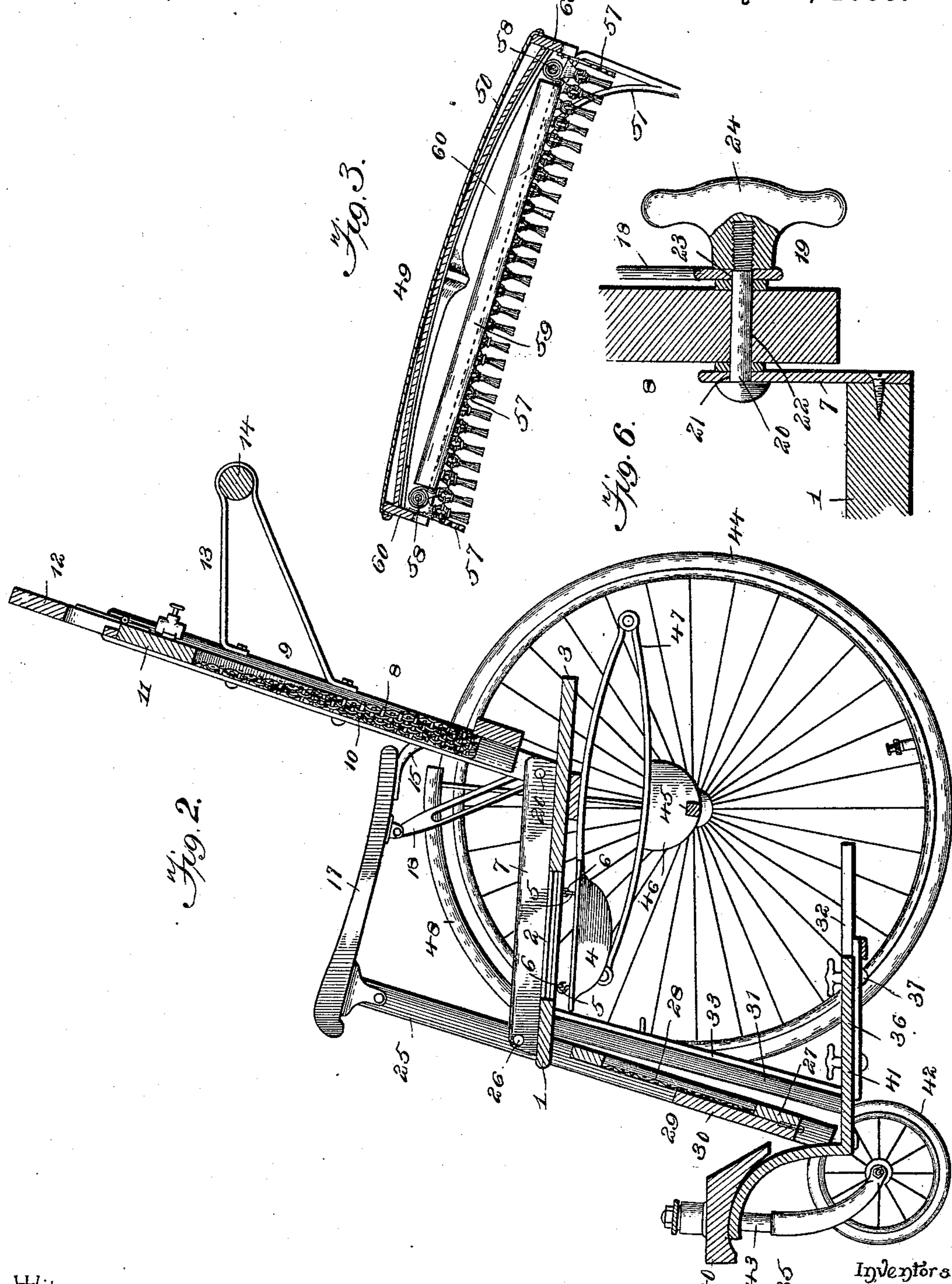
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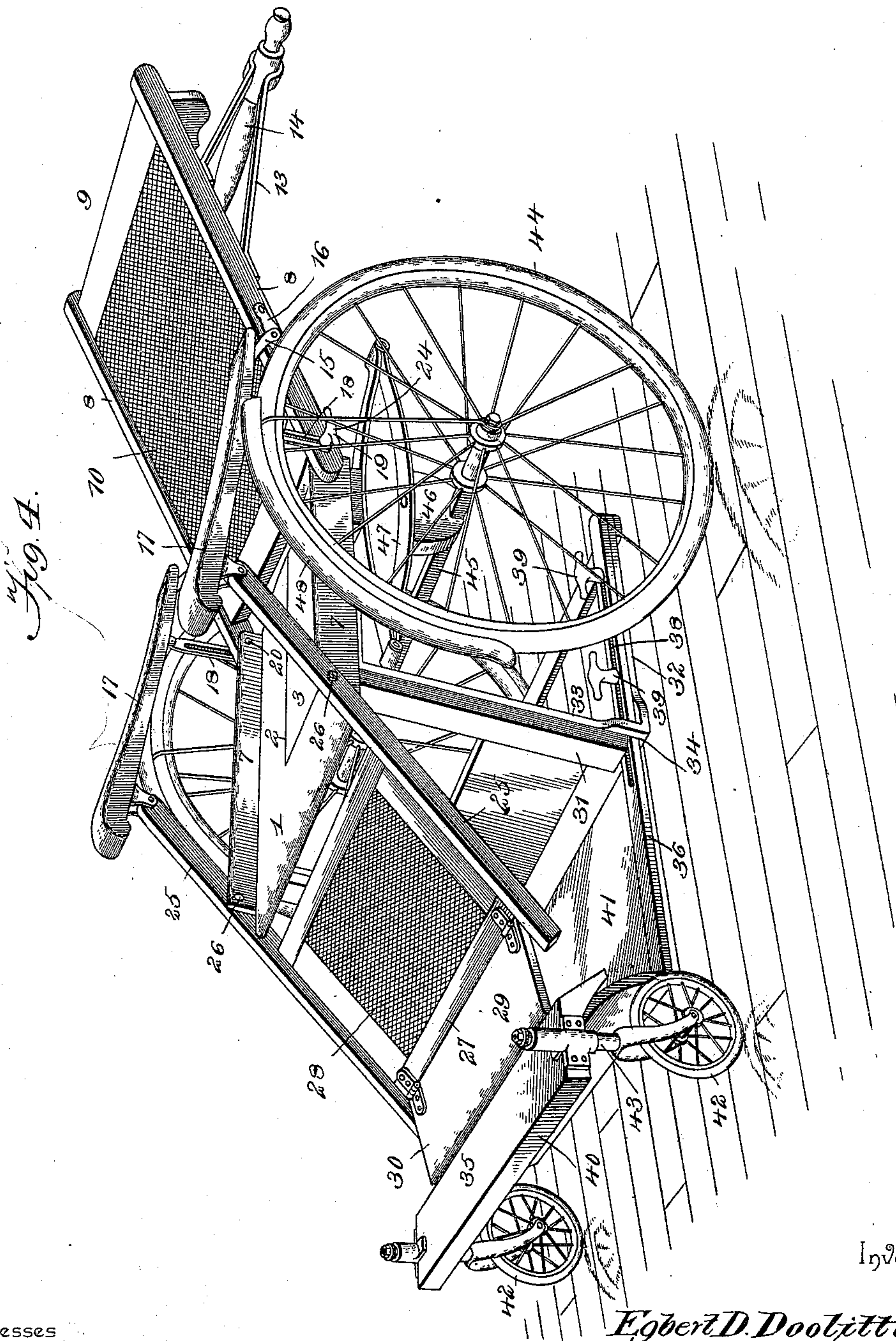
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# UNITED STATES PATENT OFFICE.

EGBERT D. DOOLITTLE, OF EASTON, AND IDA W. SCHMIDT, OF NAZARETH,  
PENNSYLVANIA.

## INVALID-CHAIR.

SPECIFICATION forming part of Letters Patent No. 539,041, dated May 14, 1895.

Application filed October 6, 1894. Serial No. 525,147. (No model.)

*To all whom it may concern:*

Be it known that we, EGBERT D. DOOLITTLE, residing at Easton, and IDA W. SCHMIDT, residing at Nazareth, in the county of Northampton and State of Pennsylvania, citizens of the United States, have invented a new and useful Invalid-Chair, of which the following is a specification.

Our invention relates to invalid chairs, and the objects in view are to provide a device capable of universal use as a sitting or reclining chair, for indoor and outdoor riding, &c., and to provide means for adjusting the parts to adapt the vehicle for its various uses.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view, taken from the rear, of a chair constructed in accordance with our invention, the same being adjusted to enable an occupant to maintain a sitting posture. Fig. 2 is a vertical section of the same, showing the foot-rest adjusted close to the folding supports for indoor use. Fig. 3 is a similar section of the canopy. Fig. 4 is a perspective view of the chair adjusted to accommodate an occupant in a reclining posture. Fig. 5 is a detail perspective view of the connection between the members of the side bars. Fig. 6 is a detail sectional view of the means for adjusting the inclination of the back and connected parts.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the seat provided with an opening 2, which is parallel-sided and which is open at the rear edge of the seat, and 3 represents a slide fitted in said opening and guided by means of interlocking tongues and grooves.

In Fig. 2, we have shown the slide 3 moved backward, and under the exposed portion of the opening is arranged a pan 4, of papier maché or similar material, said pan being provided adjacent to its periphery with a series of hooks 5 adapted to engage eyes 6 de-

pending from the seat. Fixed to the side edges of the seat are thin metallic plates 7, which extend from the front to the rear edges of the seat, and to the rear ends thereof are pivotally connected the side-bars 8 of the back 9. The frame of the back is preferably open and may be provided with cane work or other material as shown at 10. Hinged to the upper bar 11 of the back is a folding head-rest 12, and secured to the side-bars of the back are the brackets 13 which support the handle bar 14.

Pivotally connected at their rear ends by means of ears 15 and bearing plates 16 are the arms 17, and pivotally connected to intermediate parts of said arms are the slotted adjusting links 18, which are engaged by locking devices 19. Said locking devices comprise bolts 20 which engage registering perforations 21, 22, and 23, formed respectively in the plates 7, side bars 8, and links 18, whereby one bolt is sufficient for the pivotal connection of a side-bar to the adjacent plate 7, and the connection of the adjacent link 18 to the side-bar; and thumb-nut 24 threaded upon the outer extremities of the bolts and bearing upon the outer surfaces of the slotted links. By loosening the thumb-nuts the links are released, to permit the adjustment of the arms 17, and at the same time the back is released and may be moved with facility to any desired adjustment. When the thumb-nuts are tightened they not only secure the slotted links, but tighten the pivotal connection of the back to the seat, thus preventing rattling at this point during progress of the vehicle.

Pivotally connected to the arms near their front ends are the front-bars 25, which are pivoted at intermediate points, as shown at 26, to the side-plates 7, the portions of the front-bars below the plane of the seat, being connected by means of a frame 27 and a filling screen 28 to form a leg support 29 and being provided with a pivoted or hinged extension leaf 30, adapted, when the chair is in position to accommodate an occupant in a sitting posture, to fold upward against and parallel with the body-portion 29 of the support.

Depending from the seat near its front edge are hangers 31, preferably inclined slightly



forward toward their lower ends, and secured to said hangers at their lower ends are the horizontal side bars 32, preferably of metal and having upwardly extending arms 33 which are bolted or otherwise permanently secured to the rear side of the hangers. Arranged at the lower ends of the hangers, with their lower sides in the plane of the upper surfaces of the side-bars 32 are guide openings 34, and the foot-rest 35 is provided with horizontal auxiliary side-bars 36 which fit in said guide-openings 34 and rest upon the upper surfaces of the side-bars 32. Said side-bars 32 and 36 combine to form extension side-bars for connecting the foot-rest to the body-portion of the chair, and the parts or members of these extension side-bars are locked in the desired relative positions by means of locking bolts 37 fitting in slots 38 in the members 36 and provided with thumb-nuts 39. The members 36 of the side-bars are bent upward and curved forward to support the transverse-bar 40, and the space between the side-bars is filled by any suitable device, shown at 41, to form a continuous rest. Mounted in suitable bearings on the foot-rest at its front end are caster-wheels 42, capable of universal movement around their spindles 43 as axes. We preferably employ antifriction bearings for the spindles of the caster-wheels, such antifriction bearings being of the type known as "ball" or "spherical roller" bearings. The main supporting wheels 44 are mounted upon the projecting ends of the axle 45 which is secured to blocks 46 connected to the lower sides of the elliptical spring 47, the upper side of said spring being secured to the seat. Guards 48 are provided for main supporting-wheels, and all of the wheels are preferably provided with pneumatic or noiseless tires.

When the chair is extended, as shown in Fig. 4, to accommodate an occupant in a reclining position, the foldable extension leaf 27 of the leg support bears upon and is held in operative position by the bar 40 of the foot-rest.

Arranged above the chair as above described is a canopy 49 of which the top 50 is connected by brackets 51 with a stem 52. Said brackets are preferably integral with arms 53 of said stem, said arms being formed by bifurcating the stem at its upper end. The stem, proper, is fitted in sleeve 54 secured to the frame of the back, and arranged in one of the sleeves is a thumb-screw 55 adapted to impinge against the stem to secure the same at the desired vertical adjustment and to prevent looseness and rattling. Attached to the upper ends of the side-bars of the back are the retaining straps 56, which are engaged with the arms 53 of the canopy support and are provided with buckles whereby the said arms may be secured firmly in position. It will be seen that when these retaining straps are adjusted, they form loops which firmly secure the arms 53 at points remote from the body-portion of the stem 52, and thus pre-

vent excessive vibration of the canopy. The top of the canopy is preferably provided at its edges with depending screens 57, in the construction illustrated these screens being of fringe or other ornamental material, and mounted within the frame of the top, and close to and parallel with the several edges thereof, are spring-rollers 58 carrying the shades 59. The canopy top is preferably provided with depending front, rear and side strips 60, and the screens 57 are secured to the inner surfaces of said front, rear and side strips, respectively. The shade rollers are mounted in the frame of the canopy-top near the inner surfaces of said strips, and therefore when the shades are folded or rolled, they are concealed by the screens. One or more of the shades may be extended to exclude the light or a draft and thus secure the comfort of the occupant of the chair.

Numerous advantages not herein mentioned will be apparent to those skilled in the art to which the invention appertains, and it will be obvious that various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

In order to hold the chair stationary while mounting or assisting an invalid thereto, we provide suitable brakes for one of the front and one of the rear wheels. The form of brake which we have found effective for the front wheel is a pivotal hook 61, mounted upon the under side of the depressed portion 41 of the foot-rest, and adapted when not in use to be swung thereunder. In Fig. 1 we have shown this brake engaged with the wheel. In connection with the rear wheel, we employ any ordinary form of bicycle brake. The handle 62 which is indicated in Fig. 1 is adjacent to the side of the seat in position to be grasped by the invalid or by the assistant. The construction of this brake is immaterial to our invention, and therefore we have not illustrated the same in detail.

Having thus described our invention, what we claim is—

1. The combination with a seat, supporting-wheels, a pivotal back and means for securing the back at the desired inclination, of hangers depending from the seat, horizontal-bars extending rearwardly from the lower extremities of the hangers, guides arranged at the point of connection between the hangers and the horizontal-bars, the openings in said guides being at their lower sides in the plane of the upper surfaces of the horizontal-bars, a foot-rest provided with caster-wheels and having rearwardly extending slotted bars which fit in said guides and rest upon the upper surfaces of the horizontal bars attached to the hangers, and locking devices carried by the horizontal-bars and engaging the slots in the superposed bars, substantially as specified.

2. The combination with an invalid chair



having a back, of sleeves or keepers secured to the rear surface of the back, a stem fitting in said sleeves or keepers and extending approximately from the lower to the upper end of the back, the stem being bifurcated or branched above the upper sleeve or keeper to form horizontal arms which extend laterally beyond the side edges of the back where they are bent upward and terminate in brackets, flexible fastening loops secured to the back near its side edges and engaging the said horizontal arms, means for adjusting these loops to take up looseness to prevent vibration of the arms, and a canopy top supported by said brackets, substantially as specified.

3. The combination with a seat and main supporting wheels, of a foot-rest having an elevated portion arranged in advance of the seat, and a depressed portion connecting said raised portion to hangers depending from the seat, caster-wheels for supporting the foot-rest, pivotal front bars arranged at the front edge of the seat with their pivots in the plane thereof, and extending above and below the seat, a back pivotally connected to the rear edge of the seat, arms connecting the back with the extremities of the upper portions of said front bars, means for securing the back at the desired inclination, and a leg-support hinged to a cross-bar connecting the lower ends of said front bars and adapted to fold between the bars, said leg-support being of such a length as to bear at its free edge upon the rear edge of the raised portion of the foot-rest when the back is in an inclined position, whereby the top of the raised portion of the foot-rest forms a continuation of the leg-support, substantially as specified.

4. The combination with a seat, supporting wheels, and a back, of a foot-rest, hangers depending from the front edge of the seat, extension side bars for connecting the foot-rest to the hangers, said side-bars comprising main horizontal members 32 and auxiliary members 36 resting upon the main members, guides 34 adjacent to the plane of the main members for the reception of the auxiliary members and having open inner sides, to allow the passage of a platform connecting the auxiliary members, and locking bolts carried by the main members and engaging slots in the auxiliary members, whereby said parts are secured at the desired adjustment, substantially as specified.

5. The combination of a seat, supporting wheels, a back pivotally connected to the rear edge of the seat, means for securing said back at the desired adjustment, front bars pivotally connected to the front edge of the seat and extending above and below the plane thereof, a filling screen connecting the front

bars below the plane of the seat, connections between the upper ends of the front bars and the back, whereby when the back is released it may be swung upward by downward pressure upon the filling screen connecting the lower portions of the front-bars, an elevated foot-rest arranged in advance of the seat, connections between the foot-rest and the seat, and a leg-support hinged to the lower edge of said filling screen between the front bars and adapted to be folded parallel with the screen and, when extended, to bear at its free edge upon the rear edge of the foot-rest, whereby the upper surface of the latter forms a continuation of said leg-support and is approximately in the plane thereof, substantially as specified.

6. The combination with a seat, supporting wheels, a back pivotally connected to the seat, means for securing the back at the desired adjustment, front bars pivotally connected to the seat at its front edge and extending above and below the plane of the same, connections between the upper extremities of the front bars, and the back hangers depending from the seat near its front edge, horizontal side bars 32 extending rearwardly from the lower ends of the hangers and provided with upwardly extending arms 23 which are permanently secured to the rear sides of the hangers and have guide openings below the lower ends of the hangers and above the plane of the horizontal arms, a foot-rest having horizontal slotted side-bars 36 fitting in said guide openings and connected by an interposed platform 41 to form a depressed portion, the front ends of said side bars being curved upward and forward, and a horizontal elevated transverse bar 40 connecting said raised front portions of the side-bars, caster-wheels mounted in bearings at the extremities of said transverse bar and adapted to swing thereunder, and a leg-support hinged to the lower edge of the filling screen between the front bars and adapted to bear at its free edge upon the rear edge of the transverse bar 40, whereby said leg-support bridges the depressed portion of the foot-rest between the hangers and the bar 40, and said bar forms a continuation of the leg-support and extends approximately in the same plane therewith, substantially as specified.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

EGBERT D. DOOLITTLE.  
IDA W. SCHMIDT.

Witnesses:

THOMAS FENICLE,  
CHAS. M. PORTER.