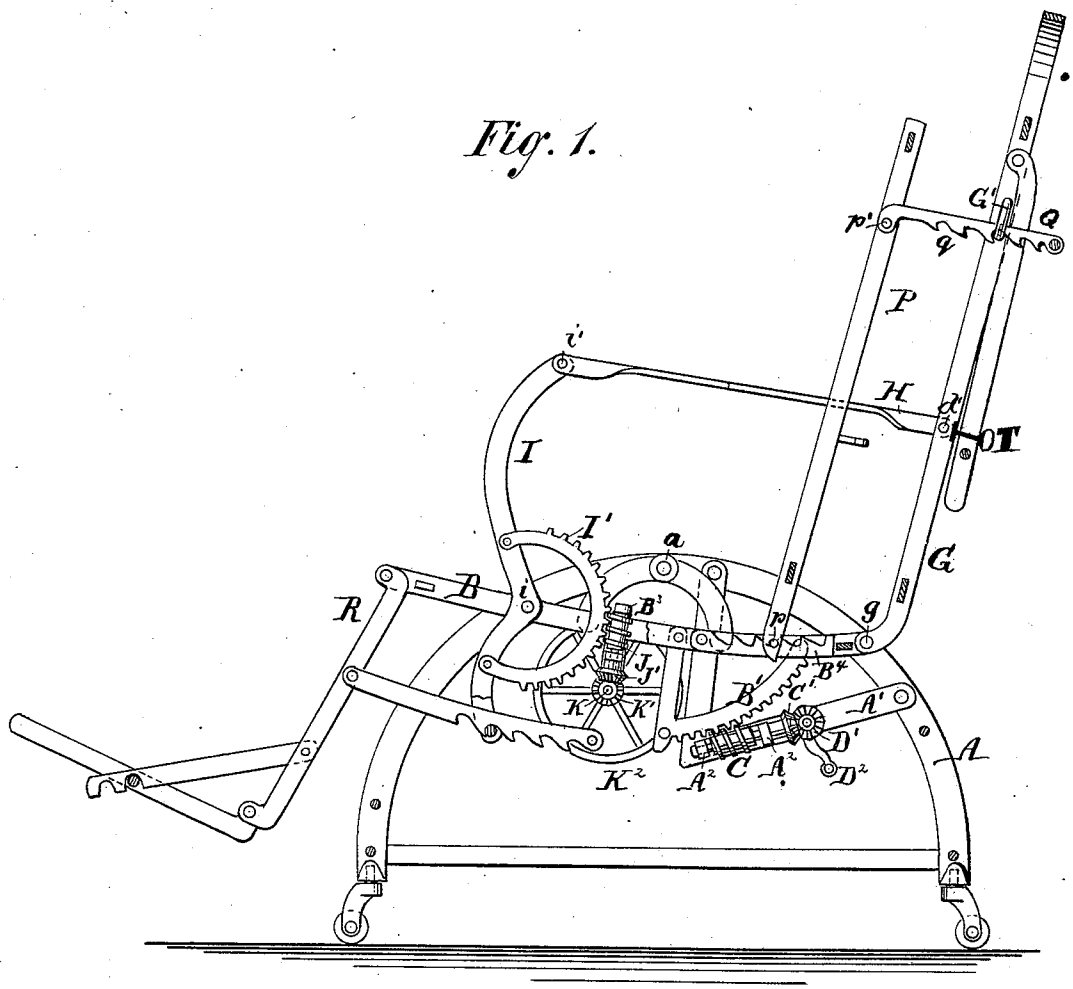
2 Sheets—Sheet 1.

F. BOHSERT.

Adjustable Invalid-Chair.

No. 215,871. Patented May 27, 1879.

Fig. 1.



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2 Sheets—Sheet 2.

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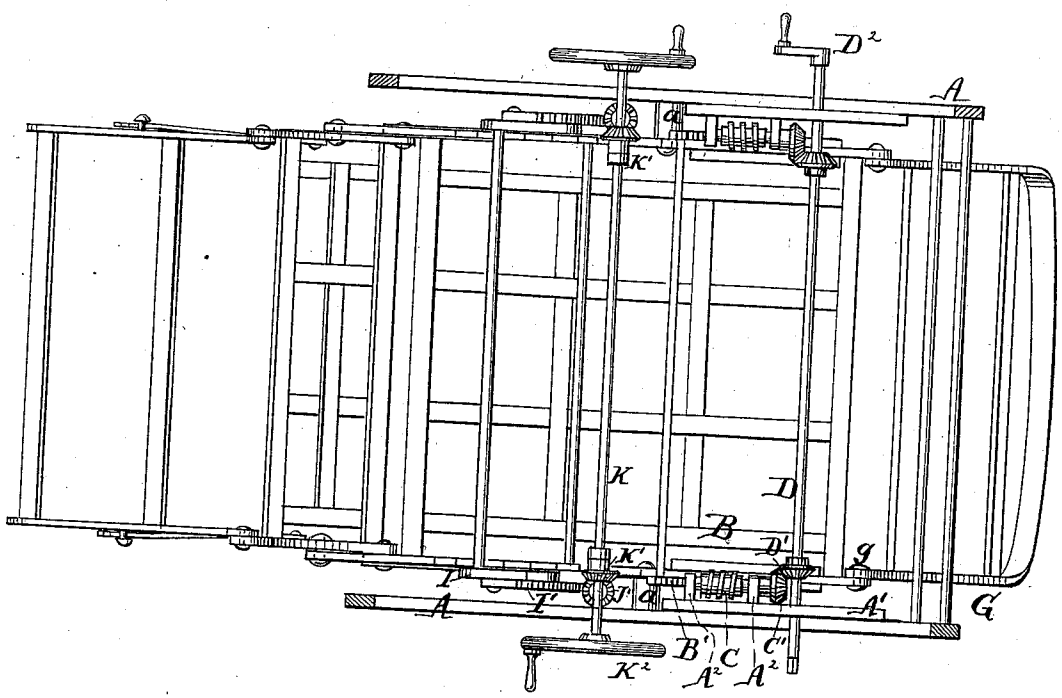
Fig. 2.



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UNITED STATES PATENT OFFICE.

FREDERIC BOHSERT, OF NEW YORK, N. Y.

IMPROVEMENT IN ADJUSTABLE INVALID-CHAIRS.

Specification forming part of Letters Patent No. **215,871**, dated May 27, 1879; application filed February 9, 1878.

To all whom it may concern:

Be it known that I, FREDERIC BOHSERT, of New York city, in the county and State of New York, have invented certain new and useful Improvements in Adjustable Invalid-Chairs, of which the following is a specification.

The invention pertains to that class in which the body with all its appurtenances may be tilted. The several members of the tilting part may also be variously tilted and adjusted relatively to each other without interfering with the changeable inclination of the main body.

My invention relates to mechanism whereby the inclination of the main body may be delicately adjusted through a wide range of motion, the movement being made gradually, and arrested at any point without necessitating any change of position of the occupant. A corresponding mechanism is also employed in combination therewith, and mounted on the body thus rocking, by means of which the back may be adjusted relatively to the seat or main body with delicacy and without necessitating any change of position of the occupant. The labor for either adjustment is performed by simply turning a proper shaft, which extends across under the seat and works an endless screw, acting on portions of worm-wheels. I have also provided, in combination with the above, a false back, which may be set at variable distances within the true back, and capable of being adjusted therewith without interfering with the adjustment of the main body or the adjustment of the back. This false back allows the effective length of the seat to be changed within wide limits without requiring any change in the true length of the seat. It changes the front surface (the working-surface) of the back farther forward or farther back at pleasure.

My invention allows the use therewith of many other adjustable parts and devices. All the proper surfaces may be upholstered with any amount of richness.

The accompanying drawings form a part of this specification, and represent what I consider the best means of carrying out the invention.

It will be distinctly understood that the chair is only shown in its frame-work and operating mechanism, the cushions and padding or upholstering being omitted.

Figure 1 is a vertical section, and Fig. 2 is a plan view, of my adjustable chair.

Similar letters of reference indicate like parts in all the figures.

A represents a frame-work, which, although it may be mounted on casters, and therefore movable, retains a uniform level, and will be considered in this description as a fixed part, some of the parts thereof being designated by additional marks, A^1 A^2, &c. A stout pivot, *a*, at the crown of this arched framing on each side supports the main body B. Certain parts of this main body or seat-frame will be designated B^1, &c.

B^1 is an arc or a portion of a worm-wheel, mounted concentrically to the center of motion *a*, and engaged with by the endless screw C, which turns in bearings A^2 A^2, mounted on the V-shaped bracket A^1 of the framing A. There is one of these partial worm-wheels and its connected mechanism on each side of the chair.

The end of each screw C is provided with a bevel-gear wheel, C′. This is engaged by a bevel-gear wheel, D^1, keyed or otherwise fixed on a shaft, D, which extends across the structure. Each end of the shaft D overhangs or extends out beyond the frame, and is squared to receive a changeable crank, D^2, which may thus be applied on either end at will, by turning which the shaft D and both the endless screws C can be simultaneously operated. The turning of this crank D^2 may be continued to any desired extent, and arrested at any point.

The main body or seat-frame B will, by the action of the endless screw C on the partial wheels B^1, stand at a corresponding inclination. The position of the main body B and its attachments may be thereby adjusted with any required degree of delicacy, while the occupant of the chair may rest his weight on the seat and lean heavily back or assume any other position therein, which need not be changed to allow of the adjustment.

G is the framing of the back. It is hinged to the main body B at the point *g*, on which

it is capable of being adjusted by turning within wide limits. A rod, H, on each side, is pivoted to the back at the point d'. The other end of each rod H is attached, by a pivot, i', to a lever, I, which turns on a pin, i, in the side of the main frame or seat-frame B. The adjustment or change of inclination of the lever I relatively to the seat-frame B will obviously induce a corresponding adjustment or change of inclination of the back-frame G. I effect this with any required degree of delicacy by means of a worm-wheel and connections mounted on the seat-frame or main frame B, and rocking therewith.

I′ is a portion of a worm-wheel rigidly fixed on the lever I concentric to the center of motion i thereof. It is engaged by an endless screw, J, which is mounted in bearings B^3, fixed on the seat-frame B. There is a bevel-gear wheel, J′, on the endless screw J. This mechanism is duplicated on each side of the chair, there being one of the partial worm-wheels I′ and one of the corresponding endless screws and gear-wheels for each lever I. Both are operated equally and simultaneously by gear-wheels K^1 on a cross-shaft, K, which is mounted in bearings also fixed on the seat-frame B. The shaft K overhangs at each end, and carries a crank or hand wheel, K^2.

By turning the shaft K, the inclination of the lever I, and, consequently, the back G, may be changed at will relatively to the seat or main frame B, while the whole may, either simultaneously or at a different time, be changed in inclination by the turning of the other shaft, D.

I have shown the shaft K as provided with two hand-wheels, K^2 K^2, one at each end. I have shown only one of the cranks D^2, which is capable of being shifted from one side to the other of the chair. These precise conditions are not essential. A crank or wheel may be fixed on each end of the shaft D, or a changeable wheel or crank may be used only on one end of the shaft K; but it is important that either or both shafts may be worked on either side of the chair, as it allows the shaft to be turned either by an attendant or by the person occupying the chair, while either side is close against the side of the apartment, or by a person having either hand or arm disabled.

P is my false back. On this the upholstery of the back should be mounted. This false back P may lie close to and partially within the main framing G of the back; or it may be carried forward to a considerable extent, as indicated in Fig. 1; or it may be set in various intermediate positions.

A pin or projection, p, extends outward from each side of the framing P at the bottom, and is adapted to engage in any one of the notches of a rack-bar, B^4, rigidly fixed on the interior of the framing B, one on each side of the chair.

Near the upper side of the false back P is connected, by pivots p', a frame, Q, formed as represented, and having notches q on each side adapted each to engage in the corresponding yoke or keeper G′ provided on the frame G. There is one of the yokes G′ on each side.

My chair may be used for a great variety of purposes. It may be equipped with foot-rests and various paraphernalia for medical uses, in which the main body B and its attachments will be required to be tilted to very great extent; or it may be used simply as a rest for invalids, in which case the motion of the main body will be usually less, but is frequently very important.

The occupant may by my mechanism, even with little strength, change the body and its attachments at will. He may also change the back at will, either in combination with or independently of the changing of the main body.

A tall person, or one having long thigh-bones, may require the false back to be moved backward, in order to bring the knees to correspond with the joint of the foot-piece R at the front, or to bring any desired portion to a uniform position at the front. I have not deemed it necessary to make this point adjustable after the occupant has taken his seat, and without necessitating any labor or change of position. It will usually be sufficient to determine approximately the position of the back required, and to change the false back P forward or back as required. All that is necessary for this purpose is to lift the frame Q sufficiently to liberate its teeth from the yokes G′, and to lift the frame P sufficiently to detach the projections p from the racks B^4. Then the false back P may be moved forward or backward to the desired position, and the parts being allowed to engage—that is to say, the projection p to engage with the racks B^4 and the frame Q to engage with the yokes G′—the chair is ready for use, and the false back and its connections will change their inclination with the gradual change of the true back G whenever required.

The construction of all the parts described, as also of the additional pieces at the foot and behind the back, allows the structure to be extended and used as a bed or lounge, and also to be folded up into a small compass when not required for use. These parts will not require further description.

T is a turning-button, by the aid of which the folding parts of the chair may be firmly held together when desired.

I claim as my invention—

1. In a tilting medical or invalid chair, the tilting or adjustment of which is effected by worm-gearing, the combination of the tilting-chair body B, provided with two segments, B^1 B^1, one on each side, and two endless screws, C C, each having a bevel-gear wheel, C′, with the transverse shaft D, having bevel-gear wheels D^1 D^1, and means for operating said shaft at the sides of the chair, the whole adapted to serve as specified.

2. A chair having the tilting seat B, with its operating mechanism D^1 D^2 C′ C, and pro-

vided with the adjustable back G and its adjusting mechanism K K' J I', and the connections I H, as herein specified.

3. In a tilting chair, the combination, with the body B, provided with the rack-bars B^4, of the false back P, having the pins *p* and hinged notched frame Q, and the back G, provided with the yokes G', as herein specified.

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

FR. BOHSERT.

Witnesses:
CHAS. C. STETSON,
J. K. OULAHAN.