(No Model.)

4 Sheets—Sheet 1.

G. F. CHILD.

ADJUSTABLE CHAIR.

No. 336,387. Patented Feb. 16, 1886.

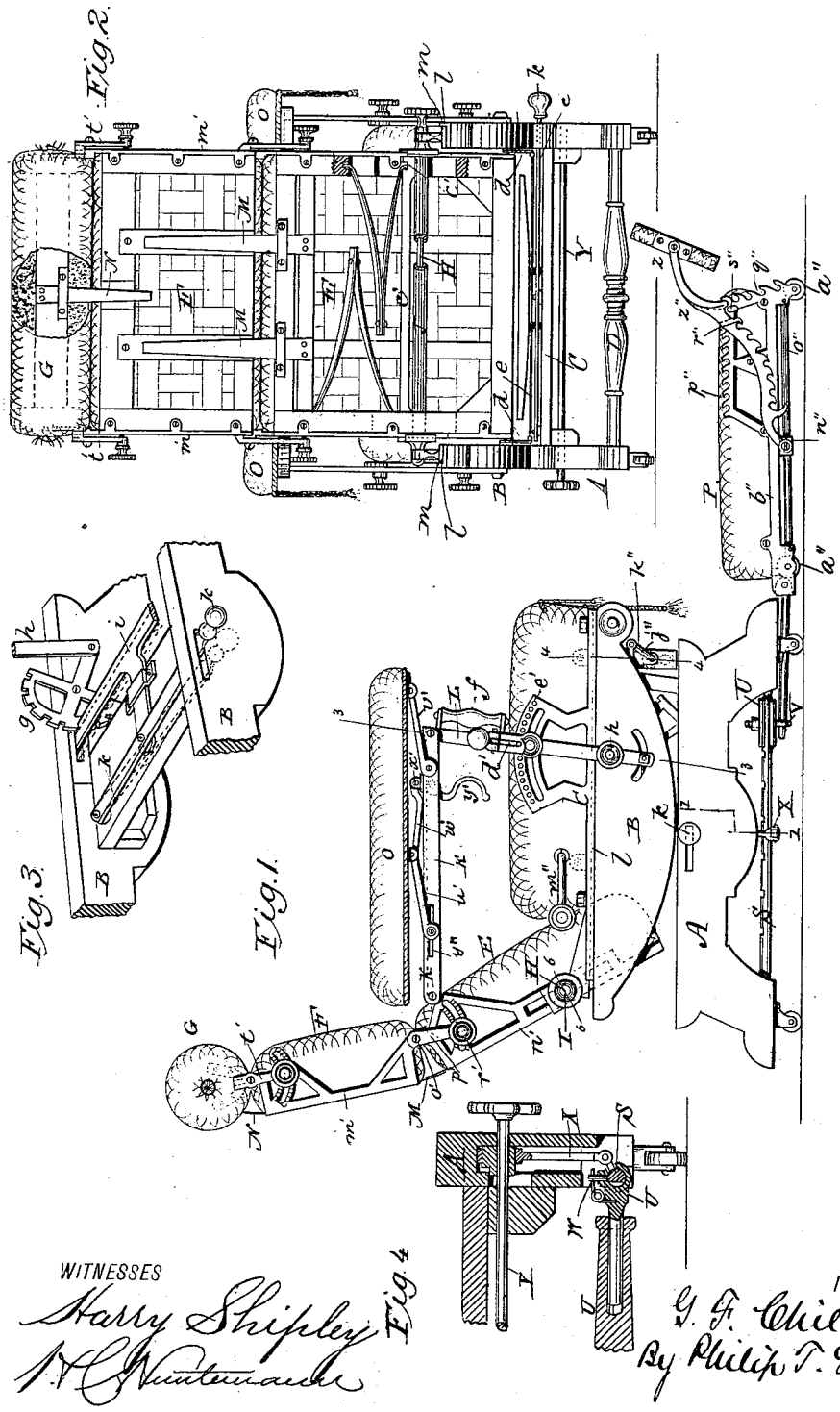


Fig. 2.

Fig. 3.

Fig. 1.

Fig. 4.

WITNESSES

Harry Shipley

P. C. Dieterich

INVENTOR

G. F. Child.

By Philip T. Dodge

ATTORNEY

N. PETERS. Photo-Lithographer, Washington, D. C.

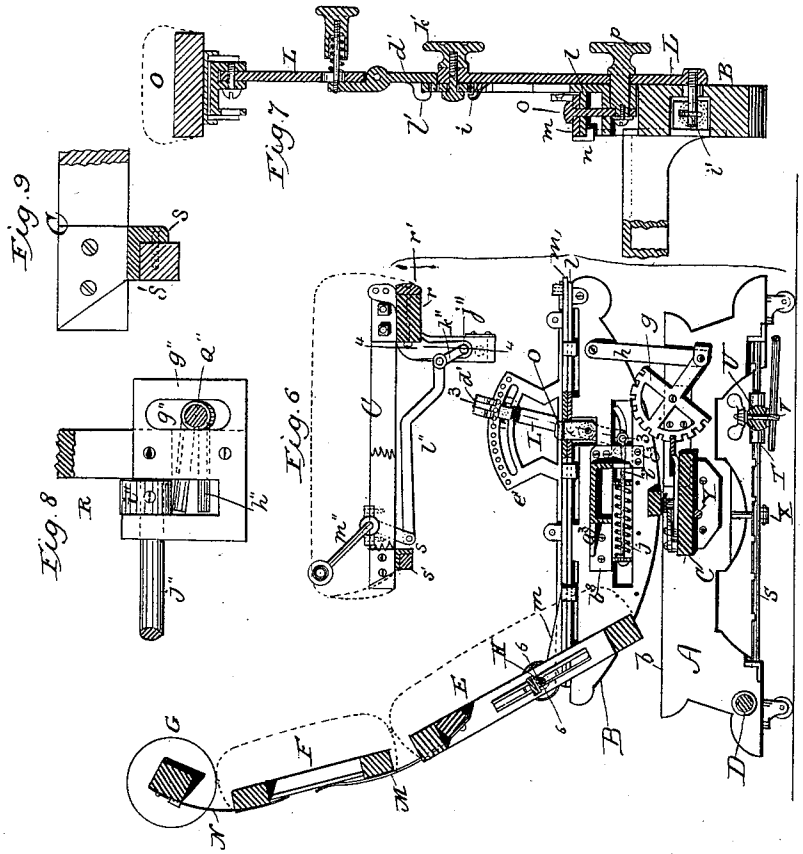
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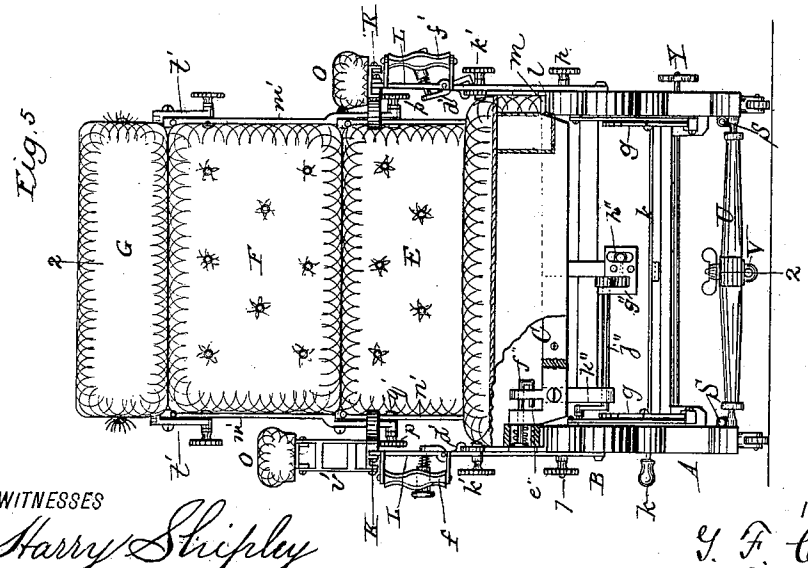
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No. 336,387. Patented Feb. 16, 1886.





WITNESSES

Harry Stripley

M. C. Huntemann

INVENTOR

G. F. Child

By P. T. Dodge.

ATTORNEY

N. PETERS, Photo-Lithographer, Washington, D. C.

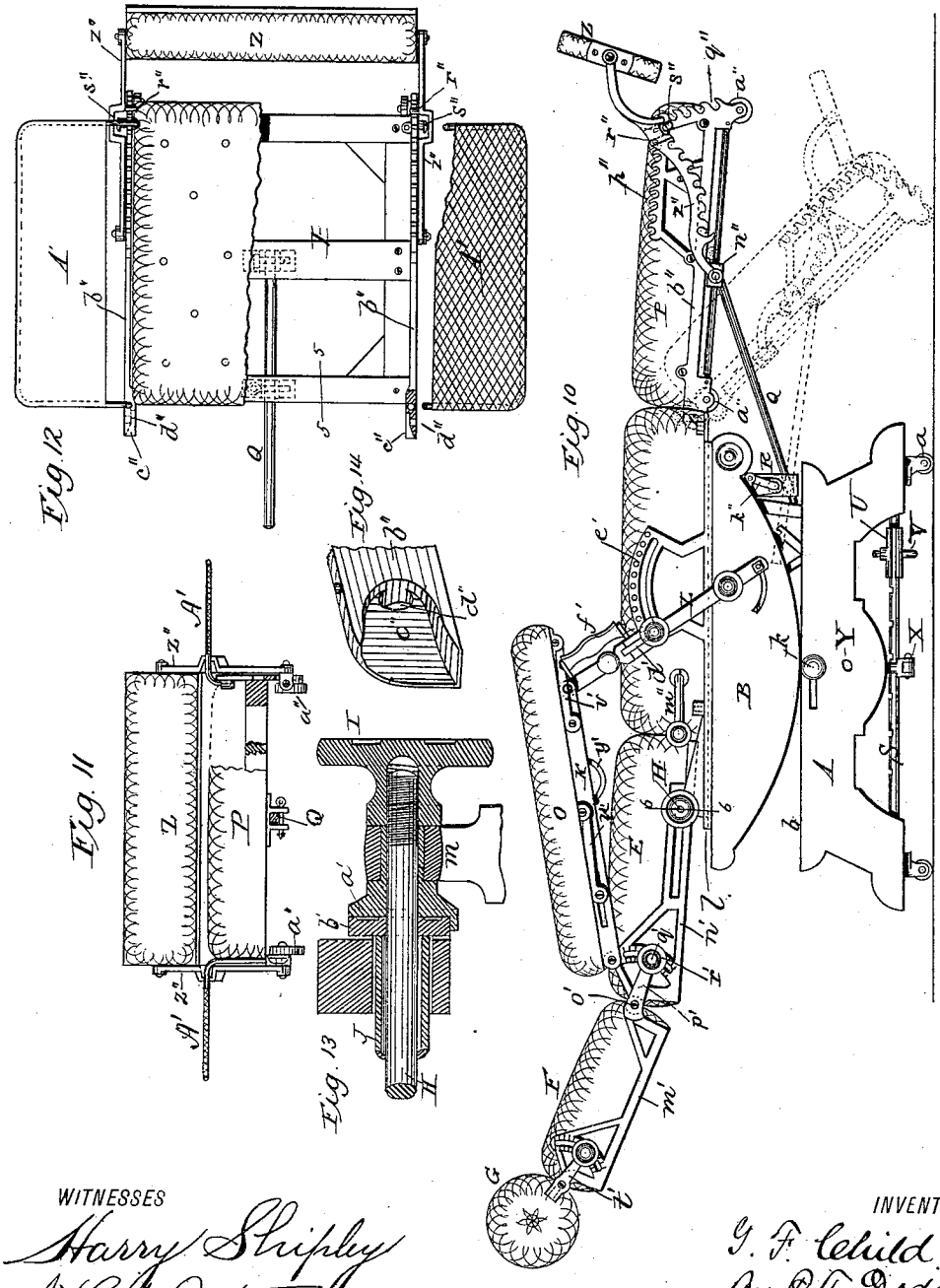
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G. F. CHILD.

ADJUSTABLE CHAIR.

No. 336,387. Patented Feb. 16, 1886.



WITNESSES

Harry Shipley

A. C. Fennemann

INVENTOR

G. F. Child.

By P. T. Dodge.

ATTORNEY

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 4 Sheets—Sheet 4.

G. F. CHILD.

ADJUSTABLE CHAIR.

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Fig 15.

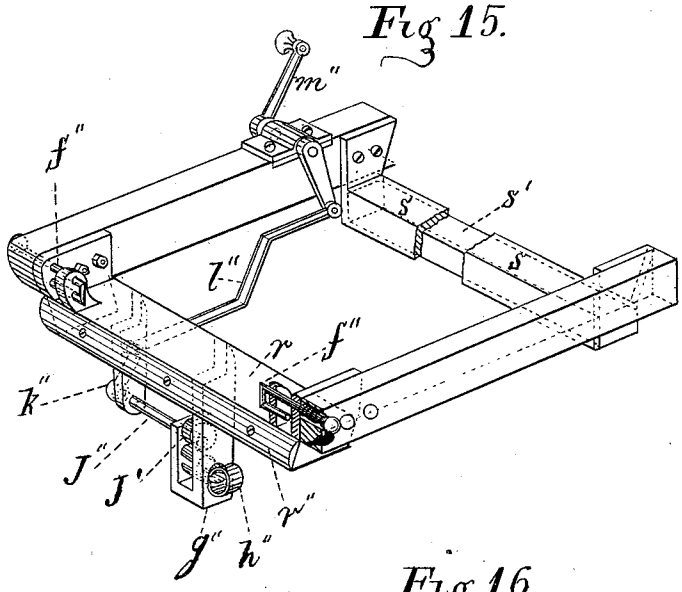
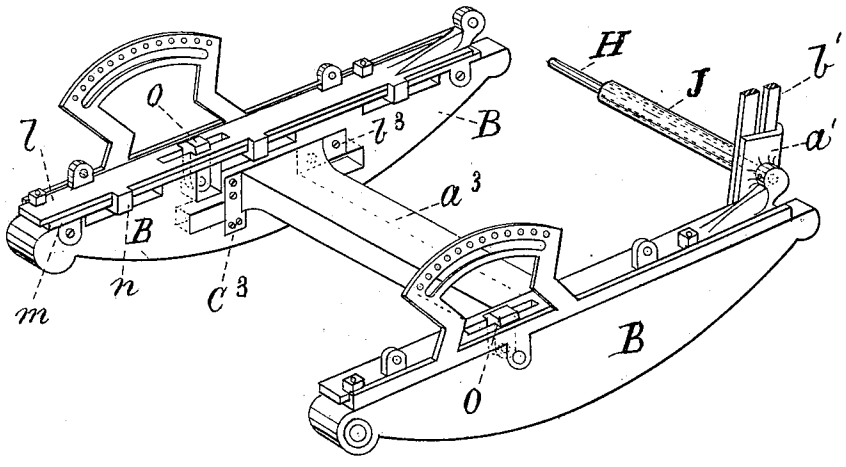


Fig 16.



WITNESSES

W. H. Shipley.

Wm. G. Kennedy

INVENTOR

G. F. Child

By his Attorney

P. F. Dodge.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

GEORGE F. CHILD, OF SPRINGFIELD, OHIO.

ADJUSTABLE CHAIR.

SPECIFICATION forming part of Letters Patent No. 336,387, dated February 16, 1886.

Application filed May 13, 1884. Serial No. 131,393. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. CHILD, of Springfield, in the county of Clark and State of Ohio, have invented certain Improvements in Adjustable Chairs, of which the following is a specification.

Referring to the accompanying drawings, Figure 1 represents a side elevation of the chair as it appears when adjusted for use by a person sitting in an erect position with the foot-support upon the floor. Fig. 2 is rear elevation of the same, portions of the upholstering being removed to expose the springs for sustaining the weight of the adjustable back, and also various other details. Fig. 3 is a perspective view of a portion of the interior of the base-frame, showing the devices by which the rocker-frame is locked in position thereon. Fig. 4 is a cross-section on the line 1 1, Fig. 1, showing the mechanism by which the movable foot-rest is locked in position when resting upon the floor. Fig. 5 is a front elevation of the chair in the position represented in Fig. 1, the foot-rest being removed and a portion of the main frame being broken away at the side to expose interior parts to view. Fig. 6 is a vertical longitudinal section through the chair-frame on the line 2 2 of Fig. 5, the upholstering being removed and the seat-frame being represented as lifted above the chair in order to expose the operative parts of the mechanism to view. Fig. 7 is a vertical cross-section on the line 3 3 of Figs. 1 and 6 through the arms and attendant devices by which the back of the chair is varied in inclination. Fig. 8 is a vertical section on the line 4 4 of Figs. 1 and 6, showing the details of the clamp for locking the movable foot-rest. Fig. 9 is a vertical longitudinal section through the rear bar of the seat-frame on the line 5 5 of Fig. 12. Fig. 10 is a side elevation of the chair as it appears when adjusted for a recumbent position of the occupant. Fig. 11 is an end view of the foot-rest and the movable side boards employed therewith. Fig. 12 is a top plan view of the same, a portion of the upholstering being removed to expose the frame-work thereunder. Fig. 13 is a cross-section on the line 6 6, Figs. 1, 6, and 10, showing the construction of the devices for changing the pivotal point of the back. Fig. 14 is a perspective view of one of the bearings by which the foot-rest is connected to the seat-frame. Fig. 15 is a perspective view of the sliding seat-frame, one end being broken away to expose one of the bolts by which the leg-rest is attached. Fig. 16 is a perspective view of the rocker-frame and the sliding bars thereon to sustain the seat-frame.

In proceeding to construct my chair I first provide a base-frame, A, designed to rest permanently upon the floor or other support. This frame may be of any suitable character, with or without supporting-casters *a*. It is preferably composed, as shown in the drawings, of two longitudinal side bars having horizontal upper surfaces, *b*, and of cross-bars C and D, forming rigid connections between them. The cross-bar C is made of flat form, in order to afford an extended surface for the support of the spring and rocking devices hereinafter described. On top of the base-frame I mount the rocker-frame B, which serves to support the remaining portions of the chair. This rocker-frame may be varied in its details of construction, provided its sides are curved on the lower edge, to admit of its rocking forward and backward on top of the base-frame.

For the purpose of maintaining the rocker-frame normally in a horizontal position, I connect it by means of plates *d*, pivoted to its inner sides, to the extremities of a spring, *e*, which extends transversely across the base-frame, with a pivotal connection thereto at the middle. The details of this spring, which is well known in the art, constitute no part of my invention, and it may be replaced by any other known form of spring adapted for the purpose.

At certain times it is desirable that the rocker-frame shall be left free to receive a rocking motion, and at other times that it shall be secured rigidly to the base-frame in different positions, according to the purposes for which the chair may be used or the adjustment in which its other parts may be placed. For this purpose I provide a locking mechanism, such as represented in Figs. 3, 5, and 6. A sector-plate, *g*, is pivoted to the base-frame on each side and pivoted on one edge to a link, *h*, the upper end of which is in turn pivoted to

the rocker-frame, so that the movement of the rocker-frame causes the plate to turn upon its axis. Directly in rear of these plates I extend across the frame from side to side a locking-bar, *i*, the ends of which are seated in slots or slotted plates on the frame, so that the bar may be caused to engage simultaneously with the two sector-plates, thus locking the rocker-frame on both sides of the chair. The locking-bar *i* is provided at its middle, as in Fig. 3, with a backwardly-extending arm, the rear end of which is pivoted to a hand-lever, *k*, which is in turn pivoted at one end to the cross-bar of the rocker-frame, and extended at the opposite end outward through a slot in the side of said frame in such position that it may be readily operated by the person occupying the chair. A backward movement of the projecting end of this lever has the effect of unlocking the bar from both sector-plates, and thus leaving the rocker-frame free to tip forward and backward, while a forward movement of the lever, on the other hand, will have the effect of causing the bar to lock both plates.

The series of notches in the sector-plates admit of the rocker-frame being locked in a horizontal position or in either of various inclinations in a forward or backward direction.

A shoulder or locking device may be employed to hold the hand-lever in position, if required; but under ordinary circumstances this is found unnecessary.

The seat, back, and foot-rest of my chair are adjustable to various positions, as hereinafter explained. The effect of these adjustments is to cause the center of gravity of the occupant to be shifted forward and backward with respect to the rocker-frame. For the purpose of counteracting this effect, and bringing the center of gravity at all times at or near the center of the rocker, to the end that the adjustments of the chair may be conveniently effected, and that there may be no tendency to tip forward and backward, I provide for an adjustment of the seat, back, and foot-rest—or, in other words, of all the supporting-surfaces of the chair—forward and backward with respect to the rocker-frame. The details of construction to this end may be modified in various respects, which will suggest themselves to the skilled mechanic, the essential feature of the invention consisting in the combination of the supporting-surfaces with the rocker-frame in such manner that they are movable forward and backward thereon.

In the drawings, Figs. 1, 2, 6, 7, and 16, I have represented the rocker-frame B as provided on the top with longitudinal rails or slides *l*, which support and guide corresponding plates, *m*, which are secured at the sides of the seat-frame, this construction permitting the seat-frame to slide forward and backward upon the rocker-frame. To prevent the accidental disengagement of the parts, the flanges or lips *n* are formed on the plates *m* and arranged to engage over and beneath the edges of the plates *l*, in the manner represented in Fig. 7.

In order to prevent the accidental shifting of the seat-frame, it is necessary to provide means for locking the same in position. For this purpose I provide each of the plates *m* with a longitudinal slot and pass downward through the same a T-headed bolt or plate, *o*, which extends through the lower plate *l*, and has lower extremity mounted on an eccentric formed on the journal of a hand-wheel, *p*, which latter has a bearing in the rocker-frame and is exposed on the exterior, as shown in Fig. 7. These wheels are in such position that they may be conveniently reached by the occupant of the chair. When the wheels are rotated in the proper direction, the eccentrics tend to draw the bolt or plate *o* downward, so as to bring the plate *m* into forcible contact with the plate *l*, thereby locking the two firmly together. The hand-wheels are preferably given a bearing in projections formed on the metal plates *l*, as shown in Fig. 7.

The square seat-frame consists, as shown in Fig. 15, of wooden side bars and two metallic cross-bars, *r* and *s*, located at the front and rear, and provided at the ends with upturned flanges, which are screwed or bolted fast to the inner faces of the side bars, as shown in Fig. 6. The bar answers the additional purpose of a weight to counterbalance the back of the chair when used as a rocker.

As seen in Figs. 15, 6, and 9, the side bars of the frame lie wholly above the upper surfaces of the cross-bars, leaving a flat unobstructed space between the side bars for the introduction of the upholstery, the construction being such that the series of springs to sustain the seat may be extended to the extreme edges of the seat-frame, those at the front and rear being seated, if desired, directly on top of the bars *r* and *s*. This construction is advantageous, in that it permits the seat to be given soft and elastic edges, which could not be done were the front and rear bars raised to a level with the side plates. The rear bar, *s*, is made, as shown in Fig. 15, of an L form in cross-section, and has secured to its rear surface a wooden bar, *s'*, to which the upholstering may be tacked or otherwise attached. The front bar is provided on its forward edge with a wooden bar, *r'*, screwed or otherwise secured thereto, to admit of the upholstering being attached.

Referring next to the back of the chair, it consists, as shown in the several figures, of a section, E, to support the lower portion of the back and the hips, an upper section, F, to support the shoulders, and of a top section, G, to support the head, the three sections being jointed together and to the seat-frame. The lower section, E, commonly denominated the "hip-rest," consists of a rectangular frame mounted on a horizontal shaft, H, which is extended through longitudinal slots in the sides of the frame and seated at

its ends in ears or bearings on the side plates, *m*, of the seat-frame, the arrangement being such that the rest is permitted not only a sliding motion on its rod in a longitudinal direction, but also a pivotal motion about the same. The combined sliding and pivotal motion of the rest E admits of its being placed in an upright, a horizontal, or in any intermediate position, while the sliding movement admits of its being raised and lowered, in order to adapt the back of the chair to the height of the operator, so that the shoulder and head rest may be brought into proper position to afford a comfortable support.

For the purpose of fixing the hip-rest E at the desired height, I provide the pivot-rod H at one end with a screw-thread and mount thereon a hand-nut, I, as plainly represented in Fig. 13, securing its opposite end to the bearing in which it is supported, or otherwise fixing it in position. Around the two ends of the rod, inside of the plates *m*, I place friction-plates *a'*, the inner faces of which bear against the slotted plates *b'*, secured to the sides of the rest-frame, as represented in Figs. 1, 2, and 13. The plates *a'* are preferably constructed with necks or trunnions extending outward from the supporting-plates *m*, to receive the pressure of the nut I on the outer side. Upon tightening the nut I the plates *a'* will be forced against the plates *b'*, creating friction sufficient to prevent the rest-frame E from sliding in either direction, the frame being, however, left free to swing about the rod with a pivotal motion.

For the purpose of relieving the parts from excessive strain, I encircle the rod H with a metallic sleeve or tube, J, the ends of which abut against the inner faces of the plates *b'*, as represented in Fig. 13, affording a solid support for said plates when subjected to compression.

In order to counterbalance the weight of the back-section E, in order that it may be raised and lowered by a person occupying the chair, I propose to employ springs applied in any suitable manner to urge the frame upward. I recommend for this purpose springs of the form and arrangement represented in Fig. 2. There are two of these springs, each of a V form, one acting at each side of the chair. Each spring has its upper end seated against a shoulder or other bearing on the frame E, while its lower end is seated on a bar or other support, *c'*, which is supported at a fixed height by means of the cross-rod H, before referred to. In place of this support, any other fixed support for the lower end of the springs may be employed. In practice I prefer to make the springs of a strength slightly greater than is required to elevate the back, in order that they may rise automatically when released, but be depressed by the application of a moderate pressure.

For the purpose of holding the hip-rest at different inclinations, I pivot the same on each side, at or near the upper end, to the rear end of a bar, K, which is extended forward and pivoted to the upper end of a swinging arm, L, which is fulcrumed upon a journal on the hand-wheels *p*, before referred to. As a means of locking the seat against the sliding motion forward and backward, each of these arms L is provided with a pivoted locking-dog, *d'*, the lower end of which engages in holes or notches in a sector-plate, *e'*, which is ordinarily cast integral with the side plate, *m*, of the rocker-frame, but which may be, if desired, a separate piece attached in any suitable manner. By means of the dogs the arms are locked in position and the links K caused to sustain the back E firmly either in an inclined or in a horizontal position, as may be required. Each of the arms L is provided with a rigid handle or piece, *f'*, by means of which it may be conveniently thrown forward and backward. The occupant of the chair, grasping these handles, may at the same time conveniently unlock the dogs *d'*, and thereby unlock the back, and by throwing the arms L forward or backward change the position or inclination of the back as desired. In order that this adjustment may be effected without undue exertion, I provide springs to counterbalance the weight of the back. I prefer to employ spiral springs, arranged as represented in Figs. 6 and 7. The lower end of each arm L is provided with a pin or journal extending inward through a slot in the rocker-frame, and connected at its inner end to a rod, *i'*, which extends backward through a spiral spring, *j'*, to a washer or plate on its rear end. The forward end of the spring being seated against a stationary plate, the force of the spring is applied through the rod to the lower ends of the arms L, and thence through the intermediate connections applied to sustain the rest E.

As an additional means of confining the arms L in position, I propose to employ hand-nuts *k'*, seated on bolts which are extended through curved slots in the sector-plates *e'*, and provided with heads or enlargements on the inner side, as shown in Fig. 7, so that by tightening the nuts the arm may be bound tightly against the plate.

To prevent the arm L from being sprung laterally away from the sector-plate, I propose to provide it, as represented in Fig. 7, with a lip or shoulder, *l'*, to engage over the edge of the plate.

Referring next to the middle section, F, of the back, commonly denominated the "shoulder-rest," it will be seen to consist of a rectangular frame provided at its ends with metallic plates *m'*, which are pivoted at their lower ends to the corresponding plates, *n'*, of the hip-rest E, this jointed connection permitting the shoulder-rest to be thrown forward and backward independently of the hip-rest. In order to maintain a close joint between the two sections, notwithstanding their changing relations, the pivotal point *o'* should be located midway between the front and rear surfaces.

For the purpose of locking the shoulder-rest in different positions with respect to the hip-rest, its side plates, *m'*, are provided with downwardly-extending arms *p'*, each of which carries a transverse rod, *q'*, the inner headed end of which is passed through a curved slot in the frame of the hip-rest, while the outer end is provided with a hand-nut, *r'*. The surface of the plate against which the arm *p'* bears may be serrated, as shown, or may be left smooth. By tightening the nut *r'* the arm is caused to bind firmly against the plate *n'*, and in this manner the two rests E and F are locked firmly together. These nuts, like the others before mentioned, may be conveniently operated by a person in the chair.

For the purpose of throwing the shoulder-rest F automatically forward or upward when released, in order that it may be the more conveniently adjusted, I employ flat springs M, which are secured at their lower ends to the hip-rest E, and arranged to bear at their upper ends against the back of the shoulder-rest. These springs may be modified in form as desired, provided they have the mode of action substantially as above stated. It is manifest that they may be secured to either the hip or the shoulder rest, as preferred.

Referring next to the head-rest G, it is preferably made of a cylindrical or substantially cylindrical form, being composed of a frame of any suitable character, provided with upholstering. At its ends this frame is provided with depending arms *t'*, which are connected by horizontal pivots to the frame of the shoulder-rest, in order that it may tip forward and backward in relation thereto. The arms *t'* are extended below their pivots, and provided with a clamping bolt and nut engaging the frame of the shoulder-rest F, in the same manner that the arm of the latter engaged, as before described, the frame of the hip-rest. This arrangement of parts permits the head-rest to be secured in the various positions required. A spring or springs, N, secured to the head-rest, act against the upper end of the shoulder-rest to throw it forward or upward when released.

I believe myself to be the first to combine with the sections of a chair-back which are jointed together springs tending to throw the sections forward when released. For this reason I do not restrict myself to the particular construction or arrangement of details herein described, as it will be manifest to the skilled mechanic that the springs may be modified in form and mode of operation in various respects without changing, essentially, their mode of action or departing from the limits of my invention.

On each side of the chair I provide an adjustable arm-rest, O, supported by the bar K, which sustains the back, as before explained, in the manner plainly represented in Figs. 1, 5, and 10. The under side of each arm is provided with ears or lugs, which are pivoted to the upper ends of two links, *u' v'*, the lower ends of which are pivoted to the bar K. These links admit of the arm being swung upward and downward by a forward and backward motion. To sustain the arm at the required height, I pivot to its under side a link, *w'*, the lower end of which is pivoted to a slide, *x'*, mounted in the bar K, and provided on the under side with an eccentric lever, *y'*, by means of which it may be clamped in position. In place of this lever, a thumb-screw or equivalent locking device may be employed.

As it is sometimes desirable to give the arm O a fore-and-aft movement with respect to the supporting-bar K, I provide the latter, as shown in Fig. 1, with a slot, *y''*, through which the pivot of the link *u'* passes. This construction permits the lower end of the link to receive a sliding motion, whereby the rear end of the arm O is permitted to rise and fall independently of the forward end. The arm *w'* and the eccentric act, as before explained, to lock the arm O in either of the positions in which it may be placed.

In connection with my chair I employ a foot-rest, P, consisting of a rectangular frame provided with four supporting rollers or casters, *a''*, this frame being adapted for a horizontal connection with the forward edge of the seat-frame, as represented in Fig. 10, or to be placed directly upon the floor, as represented in Fig. 1. The rectangular frame forming the foot-rest is suitably upholstered or cushioned on its top, and provided on its sides with metallic plates *b''*. At their rear ends the side plates are formed with flaring sockets or eyes *c''*, such as represented in Figs. 12 and 14, each having a lateral hole, *d''*, therein to receive the pivot-pin by which the foot-rest is connected to the seat-frame. The seat-frame has its front bar formed, as represented in Fig. 5, with openings *e''*, to receive the socket ends of the plates *b''* of the foot-rest. Each end of this front bar is also provided with a laterally-sliding pivot-bolt, *f''*, one end of which protrudes on the outside of the chair, while the opposite end is returned or bent backward upon itself, in the manner plainly represented in Fig. 5, so that it may by an outward sliding motion engage through the hole *d''* in the corresponding arm of the foot-rest. Each of these pivot-bolts *f''* is encircled by a spiral spring acting to urge it outward. The construction and arrangement are such that when the foot-rest is placed in position in front of the seat, with its rear end adjacent to the latter and pushed backward, the ends of the pivot-bolts *f''* will ride into the sockets, and upon reaching the holes *d''* will spring outward automatically therein. When thus engaged, they serve as pivots, uniting the foot-rest P securely to the seat, but permitting its forward edge to swing upward and downward with the frame. The disengagement of the rest is effected by simply pressing the pins *f''* inward, whereby they are caused to release the arms of the foot-rest. For the purpose of sustaining the foot-rest in the different posi-

tions which may be desired, I pivot to the under side of the rest a rod, Q, which may be extended backward through a clamping device, R, on the rocker-frame. This clamping device is constructed in the manner represented in Figs. 1, 5, and 8. A guide-plate, g'', is secured to the seat-frame, and provided with a slot or opening, through which the sliding rod Q is extended. The rod is encircled by a swiveling clasp, h'', which is split or divided on one side, and which is acted upon by an eccentric, i'', the rotation of which has the effect of closing the two arms of the clasp together, thereby contracting or pressing the same tightly upon and around the rod Q, so that end motion of the rod is prevented. As shown in the drawings, the clasp is mounted so that it may turn loosely in its supporting-plate, in order that it may adapt itself to the changing inclination of the rod Q. The eccentric i' is attached to a rock shaft, j'', which is seated horizontally in bearings on the rocker-frame, and provided at one end, as shown in Figs. 5 and 6, with an upturned arm or crank, k'', connected by a link or bar, l'', on one end of a lever, m'', which is also mounted on the seat-frame, and which has its opposite end exposed outside of the chair in such position that it may be conveniently operated by the occupant.

From the foregoing it will be seen that by simply operating the lever m'' the rod Q may be locked and unlocked, and thus the foot-rest released or secured in either of the various positions of which it is susceptible. The rock-shaft j'' may be sustained by lugs or arms cast on the front bar of the seat-frame, or it may be otherwise connected with the seat-frame, if desired.

It will be perceived that when the foot-rest is connected to the seat, as above described, it may be adjusted forward and backward therewith, and may be also tipped or tilted therewith at pleasure.

It will be observed that the adjustment of the foot-rest with respect to the seat is wholly independent of the other adjustments of the chair, and not in any sense automatic.

If desired, the foot-rest may, while connected with the seat, be lowered until the rollers at its forward edge bear upon and are sustained by the floor, as shown in Fig. 10, in which case, if the rod Q be left free, the edge of the foot-rest will move forward and backward upon the floor when the chair receives a rocking motion. When it is desired to place the foot-rest wholly upon the floor, I disconnect it from the seat-frame, in the manner before explained, and place it in the position represented in Fig. 1. In order that when thus arranged it may be secured in different positions with respect to the chair, I provide special locking devices to engage the rod Q, which I will now explain, I provide the base-frame on each side with a longitudinal rock-shaft, S, and mount upon the rods sliding sockets or sleeves T, which support the opposite ends of a cross-bar, U. This bar is in turn provided at the center with an eyebolt, V, and a tightening-nut therefor, so that by passing the rod Q of the foot-rest through the eyebolt and then tightening the nut the foot-rest is secured in a fixed position with respect to the cross-bar. The forward and backward motion of the foot-rest upon the floor is accompanied by a like motion of the cross-bar. To provide for locking the cross-bar, and thus holding the foot-rest in position, I provide the rock-shafts S each with a series of notches in one side, and provide the sliding sockets T, as shown in Fig. 4, each with a vertically-moving pin, W, urged downward by a spring. When the rock-shafts are turned in such position as to present the notches opposite the pins, the latter will engage therein, and thus prevent the cross-bar from moving either forward or backward. By turning the rock-shafts, however, their notches may be carried out of line with the locking-pins W, and the latter caused to ride upon the smooth unbroken portion of the rod, whereupon the cross-bar may move freely forward and backward.

In order to secure the proper action of the parts, it is desirable that the two rock-shafts be turned simultaneously. For this purpose I provide each shaft, as shown in Figs. 1 and 4, with a laterally-projecting arm pivoted to the lower end of a link, X. The upper ends of the two links are mounted on eccentrics attached to opposite ends of a cross shaft, Y, which is seated in the base-frame and provided with a hand-wheel or equivalent operating device at one end. By turning this shaft the operator is enabled to operate both rock-shafts and lock and interlock the two ends of the cross-bar.

By means of the foregoing arrangement the occupant of the chair is enabled to release the foot-rest, and after moving the same forward or backward to the desired position lock the same in place.

In connection with the foot-rest I employ an adjustable foot-board, Z, sustained by means of two arms, Z'', pivoted to opposite ends. These arms are pivoted in turn at their lower or inner ends to blocks n'', arranged to slide on guide-rods o'', secured to the sides of the foot-rest. The frame of the foot-rest is provided on each side with a series of notches, p'', arranged in a horizontal line at or near its upper edge, and also provided with a second series of notches, q'', arranged in a substantially vertical line at its forward edge. Each of the arms supporting the foot-rest is provided on the inner face with a lug, r'', which may engage in either of the notches of the foot-rest. The arms Z'' are also provided on the under edge with a series of notches or shoulders, and the sides of the foot-rest provided with studs s'', to engage therein. Owing to the fact that the arms Z'' are pivoted to the sliding blocks n'', they are permitted to swing upward and downward, and also to slide forward and backward, so that the foot-board may be placed in a great

variety of positions. By shifting the studs r'' on the arms from one to another of the notches p'' the foot-board may be moved forward and backward without material change in its height. By adjusting the stud r'' from one to another of the notches q'' the foot-board may be raised and lowered without being moved forward and backward to any essential extent. By causing the stud s'' to engage in one or another of the notches of the arms Z'' the foot-board may be raised and lowered at the same time that it is moved forward and backward. It will thus be seen that by means of the three series of notches and the co-operating studs I provide for many variations in the position of the foot-board. The various adjustments may of course be effected when the foot-rest P is connected with the chair-seat as well as when it is arranged upon the floor.

When the chair is to be used as a couch or for invalid purposes, I propose to employ therewith side boards or extensions, A'—such as represented in Figs. 11 and 12—to give additional support to the bedding. These extensions consist of skeleton frames covered with canvas or other suitable material, and provided with downwardly-extending arms, which are removably seated in holes or sockets formed in the frame of the chair. Fig. 12 shows clearly the manner of applying these extensions to the sides of the foot-rest. They will be constructed in like form and applied in like manner to the seat, the hip, and shoulder rests.

Referring again to the construction of the rocker-frame A, attention is directed to Figs. 6 and 16. Owing to the fact that the lower section of the back, E—that is to say, the hip-rest—passes downward behind and beneath the seat, it is necessary that the transverse connections between the two sides of the rocker-frame shall be of such character as to afford the necessary room for the back. I therefore employ a metal cross-bar, a^3, preferably made of the hollow form represented in Fig. 6, provided at each end with a rearwardly-extending flange, b^3, and a downwardly-extending flange, c^3. The bar serves as a strong and rigid connection between the two rockers, and the two flanges, extending at right angles to each other, afford an extended surface, by means of which the rockers are held firmly in the proper relation.

It will be observed that in the operation of my chair the seat and back and the foot-rest, when attached to the seat, may be rocked forward and backward without changing their relations to each other, and that by means of the devices for locking the rockers the parts may be held in one position or another, as required.

It is to be noted that as the back is locked or jointed to the seat-frame it is caused to move forward and backward therewith without changing its relative adjustment. It will be further noted that the adjustment of the seat, back, and foot-rest in a forward and backward direction upon the rockers may occur without changing either of the other adjustments or affecting the position of the parts in other respects.

Owing to the fact that the back consists of three sections hinged together, as described, it may be adjusted to present a flat, a concave, or a convex surface, as desired, the head-rest being thrown above or below the back proper, as occasion may demand.

While I have described my improvements as embodied in a chair the upper portion of which is adapted to receive a rocking motion, it is to be understood that the rocking feature may be omitted and the other features used in chairs which are not adapted to rock.

Instead of extending the pivot-rod H of the back entirely across the same, the middle portion may be omitted, and two short rods or bolts used, one on either side.

I am aware that a seat arranged to slide upon a rocker has been hinged to the lower end of a back-rest, which was connected by fixed pivots to the chain-frame, so that the inclination of the back was determined by the position of the seat, and to such construction I lay no claim.

The devices herein shown for effecting the adjustment of the foot-rest with reference to the leg-rest are not claimed as of this invention, but will constitute the subject of a separate application.

Having thus described my invention, what I claim is—

1. In a chair, the combination of a supporting-frame, a seat movable forward and backward thereon, a back-rest hinged to the rear of the seat, and means, substantially as described, for securing the back at different inclinations regardless of the position of the seat and without moving the latter, whereby the back may be changed in inclination at will, while the seat is secured firmly in any position.

2. In a chair, a supporting-frame, a seat arranged to slide forward and backward thereon, a back hinged to the rear of the seat, and independently-adjustable back-supporting devices, whereby the back may be sustained in the various positions required independently of the position of the seat.

3. In a chair, the combination of a base-frame, a rocker-frame thereon, a seat-frame arranged to slide forward and backward on the rocker-frame, a back hinged to and carried by the seat-frame, a locking device to hold the seat in different places, and an independently-adjustable locking device to hold the back in position, whereby the weight may be balanced upon the rockers with the back in either of its various positions.

4. In a chair, the combination of a base-frame, a rocker-frame thereon, locking devices to hold the rocker-frame in different positions, a seat movable forward and backward on the rockers, a locking device to secure the seat in place, and a back attached to the seat, whereby

the weight may be balanced upon the rockers and the seat secured at any inclination demanded.

5. In a chair, the combination of a base-frame, a rocker-frame thereon, a locking device to hold the rocker-frame in different positions, a seat movable forward and backward on the rocker frame, a locking device to hold the seat in position, a back hinged to the seat and provided with locking devices, and a leg-rest hinged to the seat and provided with locking devices, whereby the several supporting-surfaces may be placed in various relative positions, shifted forward and backward in unison to place the weight centrally on the rockers, and placed at any inclination required without changing the relative positions or disturbing the occupant.

6. In a chair, the combination, with a seat and a supporting-frame therefor, of a back the solid portion of which is movable, substantially as described, upward and downward past the rear edge of the seat in close proximity thereto, whereby the seat and back may be caused to produce jointly a continuous supporting-surface of greater or less length, as occasion may require.

7. The combination of the seat, the back sustaining rod, and the back slotted longitudinaly and transversely between its upper and lower edges to receive the rod, whereby it is permitted to slide upward and downward, and also to tip forward and backward upon said rod as an axis.

8. In a chair, the base-frame, the rocker-frame thereon, the sliding seat-frame, the rod H, carried by the rear end of the seat-frame, the slotted back seated on said rod, and clamping devices acting in connection with the rod, said members combined for joint operation, substantially as described and shown.

9. In combination with the sliding seat-frame and its sustaining-frame, the back hinged to the seat-frame, the arms L, pivoted to the sustaining-frame and connected with the back, and springs, substantially as described, acting upon the arms to resist the rearward swinging motion of the back.

10. In combination with the hinged back, the pivoted arms L, the links K, and the springs connected to the arms below their pivots, and locking devices to hold the parts in position.

11. In combination with the base-frame and the rocker-frame, the notched sector-plates pivoted to the base-frame, the transverse locking-bar mounted in the base-frame and engaging at its two ends the sector-plate, and the links pivoted to the sector-plate and to the rocker-frame, as described, whereby the rocker-frame may be securely locked at both sides.

12. In combination with the horizontal rod or axis, the slotted back arranged to slide and swing thereon, and a spring mounted in the back to urge the same upward in an endwise direction.

13. In combination with a chair-back having both a swinging and an endwise sliding motion, a spring-connection, substantially as described, acting to lift the back bodily, and a second spring-connection, substantially as described, acting to swing the back forward.

14. In combination with the slotted back and its sustaining-rod H, the lifting-spring mounted therein and sustained by the rod, whereby they are permitted to act without impeding the swinging or tipping motion of the back.

15. A chair-back composed of a plurality of transverse sections having their horizontal edges united and maintained in close proximity by hinges, whereby they are adapted to produce jointly a flat, a concave, or a convex surface for the occupant, as may be demanded.

16. A sliding seat, in combination with a hip-rest hinged thereto, an upper rest hinged to the hip-rest, and independently-locking devices to hold said parts in different relative positions.

17. In combination with a chair-back composed of sections united by horizontal joints or hinges, intermediate springs tending to tip the sections in a forward direction.

18. In a chair, the combination of a seat, a hip-rest hinged thereto, a shoulder-rest hinged to the upper edge of the hip-rest, a head-rest hinged to the top of the shoulder-rest, and independent mechanism, substantially as described, for locking the respective sections in different relative positions.

19. In a chair, a back-section provided with slotted side frames, in combination with a second section having side frames jointed to those of the first and provided with clamping-screws to enter their slots, whereby the sections may be secured in different relative positions.

20. The sustaining-rod H, its support, and the clamping-nut at its end, in combination with the slotted back mounted thereon, the plates a', and the tube J, to sustain the parts against the compressive action.

21. In combination with sustaining bars or links K, the arm-rest O, the intermediate supporting-links, the fastening-link W, and a locking device, substantially as described, for holding the latter against motion in either direction, whereby the arm-rest may be prevented from either rising or falling.

22. The bar K, the arm-rest, and the two connecting-links, one of which has a sliding connection with the bar, in combination with the fastening-link W and the locking device for the latter.

23. The seat, the pivoted tipping back, the links K, extending forward at the sides of the seat, the levers or arms L, extending downward from the links, the springs acting upon the arms, and the locking devices also applied to the arms, said members combined and arranged as described, whereby the occupant of the chair is enabled to conveniently adjust the back.

24. In combination with a rocker-frame, a seat arranged to slide forward and backward thereon, a leg-rest hinged to the forward edge of said seat, to partake of its sliding motion, a brace or support attached to said rest, and a fastening device attached to the seat-frame for securing said brace in different positions, whereby the poise of the weight upon the rockers may be at all times maintained irrespective of the leg-rest.

25. A leg-rest for a chair, provided, substantially as described, with sustaining-wheels at its front and rear, with means for detachably hinging it to the chair-seat, and with a brace or rod, o^2, for connection with the chair, whereby said rest may be used with one edge hinged to the seat and the other edge upon the floor, with its entire weight sustained upon the floor, or with one edge hinged to the seat and the opposite edge sustained in the air.

26. In a chair having a back arranged to pass behind and beneath the seat, the seat-sustaining frame having its sides united, as in Fig. 16, by a central cross-bar, whereby space is afforded for the passage of the back beneath the seat proper.

27. The seat, the leg-rest hinged thereto, and the rest-sustaining rod, in combination with the contractile clamp to secure said rod, and the eccentric and shaft for actuating the clamp.

28. The seat-frame consisting, essentially, of the side bars and the relatively-depressed cross-bars, of metal, with end flanges for attachment to the side bars, whereby the upholstery and springs are permitted to extend to the extreme front and rear edges.

29. The seat-frame having the side bars, the depressed metallic cross-bars at the front and rear, and the wooden bars or facings applied to the cross-bars, substantially as and for the purpose described.

30. In a seat frame for a rocking-chair, the metallic front cross-bar adapted, as described, to serve as a counter-balance, and provided with bearings for the support of the leg-rest, as shown.

31. In combination with the leg-rest provided with eyes or sockets, the seat-frame and the spring-actuated pivot-bolts f^2, movable transversely of the chair to engage the eyes or sockets of the leg-rest.

32. In combination with the swinging chair-back, the links extending forward therefrom, the upright arms or levers to which the links are attached, and the laterally-projecting handles or hand-pieces f', whereby the attendant is enabled to adjust the back of the chair as to the inclination while seated therein.

33. In combination with a base-frame, a rocker-frame thereon, a seat-frame arranged to slide forward and backward on said rocker-frame, the leg-rest hinged to the front of the seat-frame, and the back-rest hinged to the rear of the seat-frame, whereby the weight may be brought in the desired relation to the rockers regardless of the position of the rests.

GEORGE F. CHILD.

Witnesses:
JOHN T. ARMS,
W. C. ALVORD.