

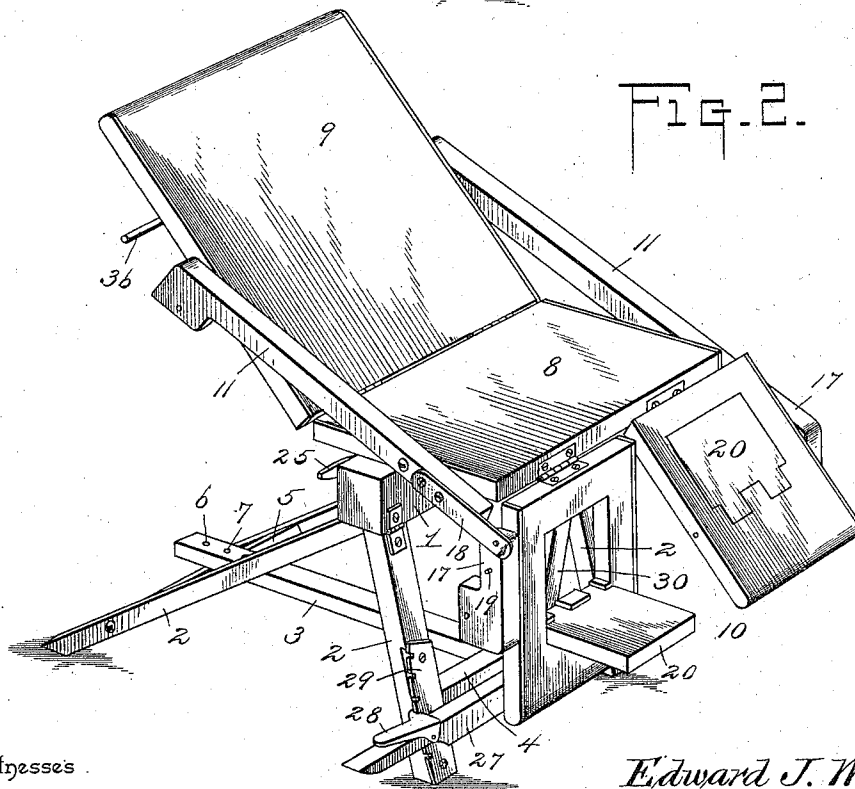
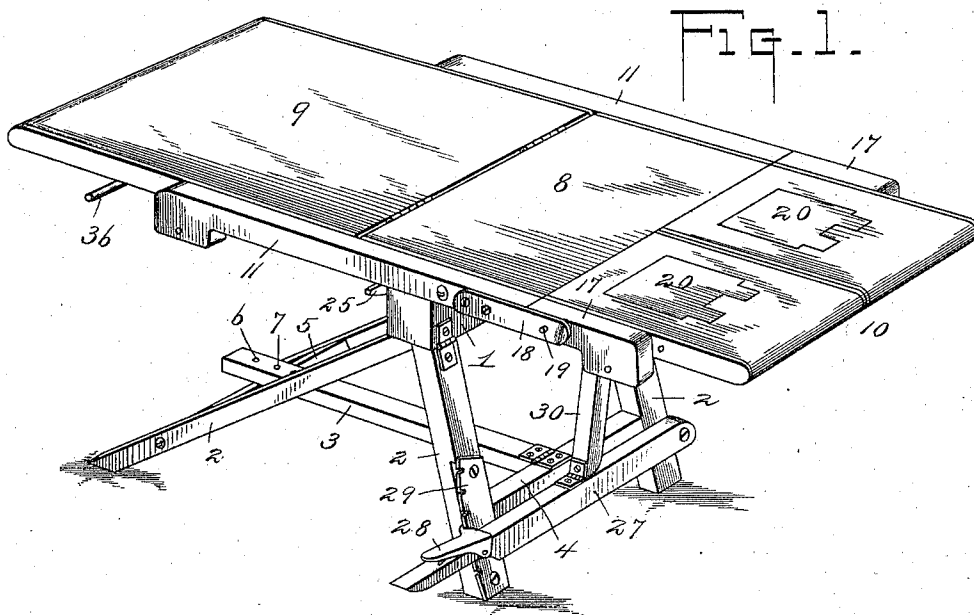
(No Model.)

3 Sheets—Sheet 1.

E. J. WELLS.
SURGICAL CHAIR.

No. 576,490.

Patented Feb. 2, 1897.



Witnesses

Harry L. Amer.
V. B. Hillyard.

Inventor

Edward J. Wells.

By his Attorneys,

C. A. Snow & Co.

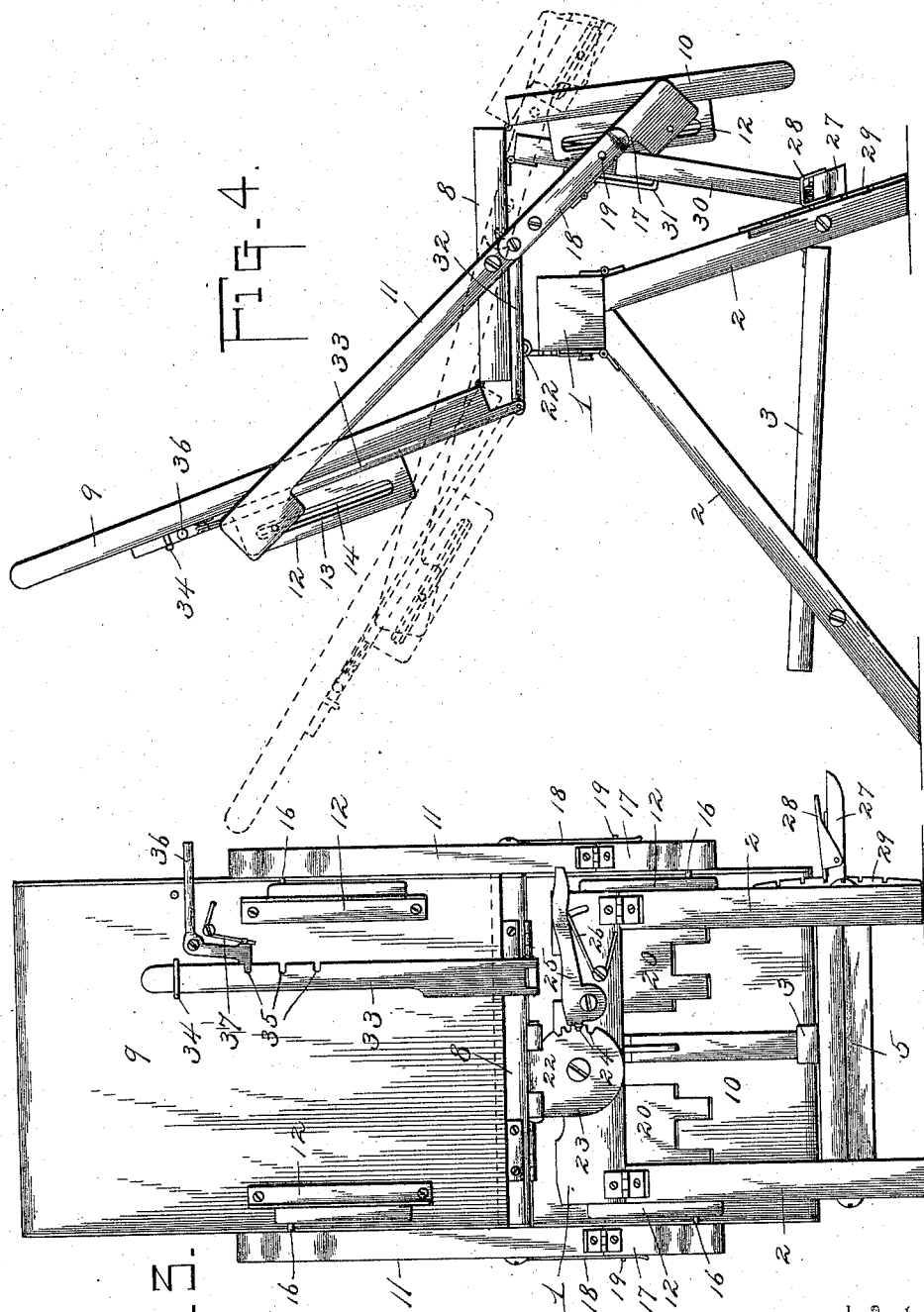
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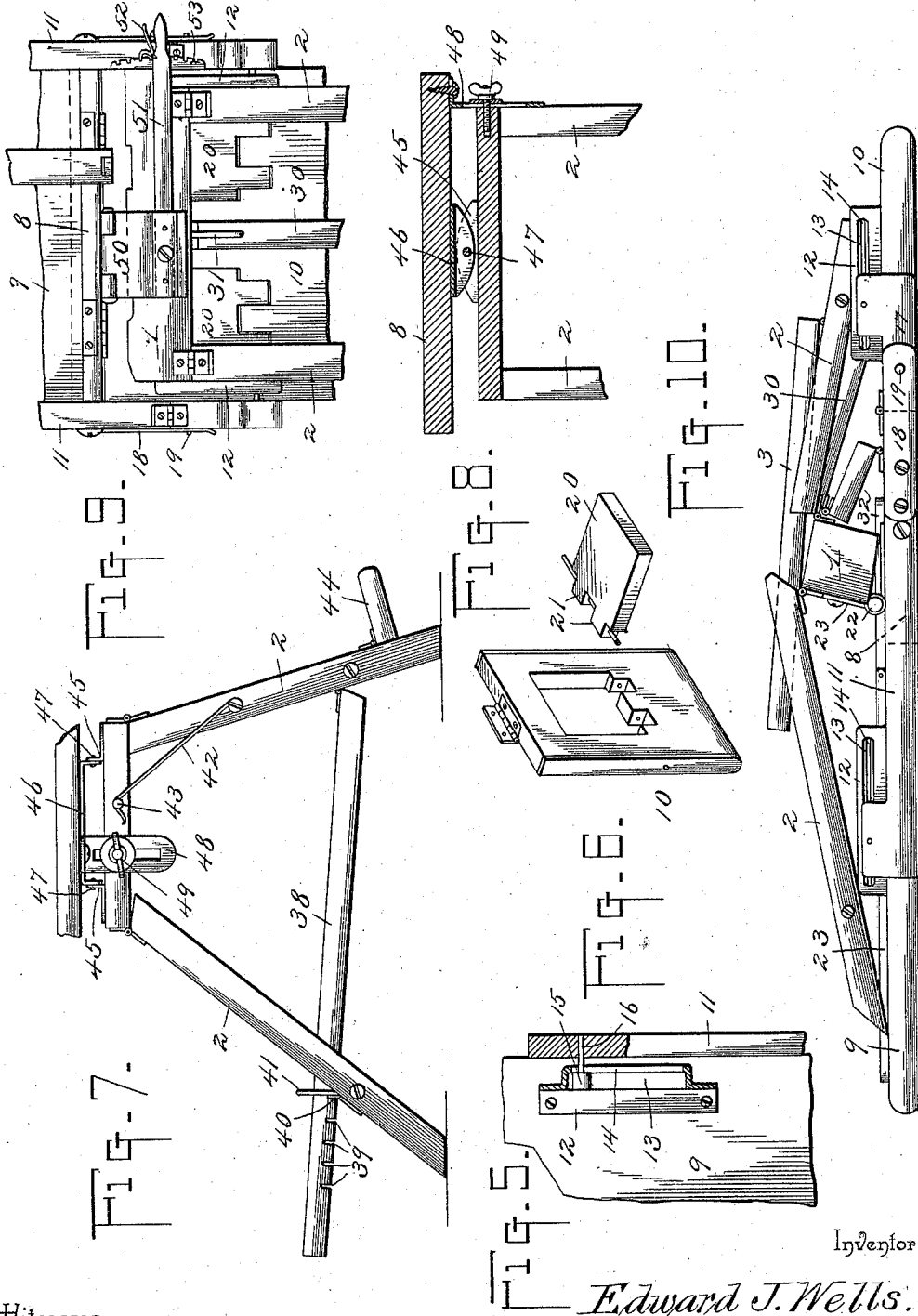
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UNITED STATES PATENT OFFICE.

EDWARD J. WELLS, OF MORRISTOWN, TENNESSEE.

SURGICAL CHAIR.

SPECIFICATION forming part of Letters Patent No. 576,490, dated February 2, 1897.

Application filed May 28, 1896. Serial No. 593,474. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. WELLS, a citizen of the United States, residing at Morristown, in the county of Hamblen and State of Tennessee, have invented a new and useful Surgical Chair, of which the following is a specification.

This invention relates to chairs which are convertible into operating-tables for surgeons, and aims to provide a structure of the character aforesaid which can be reduced to a compact form for transportation, storage, or setting aside when not required for immediate use, and which can be adjusted to any desired position to secure the best results according to the nature of the operation to be performed, the chair comprising a seat, back and leg sections, a base or stand, and means for adjusting the several parts and holding them in the located position.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a perspective view showing the chair in a horizontal position and converted into a table. Fig. 2 is a perspective view showing the chair in a semireclining position, a member of the leg-section dropped to the vertical, and the rest for a drainage-bowl in position to support the latter. Fig. 3 is a rear view of the chair as it will appear when adjusted to a normal or sitting position. Fig. 4 is a side elevation showing the chair in a sitting position by full lines and adjusted to a semireclining position by dotted lines. Fig. 5 is a detail view of the slidable connection between the side arms or bars and a section of the chair. Fig. 6 is a detail view showing the manner of connecting the rest with the leg-section. Fig. 7 is a side elevation showing a different construction and arrangement of the parts comprising the base or stand and the adjusting means. Fig. 8 is a transverse section of the upper portion of the base or

stand and the seat of the chair illustrated in Fig. 7. Fig. 9 shows a different means for tilting the chair laterally and holding it in an adjusted position. Fig. 10 shows the chair folded or reduced to a compact form.

Corresponding and like parts are referred to in the following description and indicated in the several views of the accompanying drawings by the same reference-characters.

The base or stand comprises a top piece 1 and legs 2, the latter being hinged or pivoted at their upper ends to the top piece 1, so as to admit of the structure folding when it is required to reduce it to a compact form and to admit of the lower ends of the legs being spread more or less to adjust the top piece 1 to the required elevation, as will be readily understood. These parts may have any required form and be plain or ornamented to suit the caprice of the manufacturer, and the corresponding legs will be connected to secure strength and cause them to move in unison when adjusting them to cause the top piece to assume an elevation according to the required height of the chair. A bar 3 is secured at one end to a cross-piece 4, connecting the front legs, and is adapted to make adjustable connection at its opposite end with a cross-bar 5, connecting the rear legs, whereby the two sets of legs can be spread more or less for the purpose aforesaid. The front end of the bar 3 has pivotal or hinge connection with the cross-piece 4, and its rear portion is formed with a series of openings 6 to receive a pin or projection 7, provided on the cross-bar 5, whereby positive and adjustable connection is had between the cross-bar 5 and the adjusting-bar 3.

The chair proper is formed of a seat 8, back 9, and leg-section 10, and these sections are hinged or pivotally connected together and are adapted to have independent adjustment, whereby any required position may be attained to suit the condition of the patient or according to the nature of the operation to be performed. Arms or side bars 11 are pivotally connected intermediate of their ends with the seat-section 8 and have slidable connection at their extremities with the back and leg sections, respectively, so that a tilting of the arms or side bars upon their pivots will effect a corresponding movement

of the back and leg sections, throwing the one up and the latter down, or vice versa, according to the tilting of the arms, whereby the required position of the sections may be readily attained. The slidable connection between the arms or side bars and the chair-sections is the same in each instance. Hence a detailed description of the one will suffice for a full understanding of each. A plate 12 is secured to the under side of the chair-section and is grooved in one side, as shown at 13, and a slot 14 is formed in the plate in coincident relation with the groove. A block or slide 15 has pivotal connection with a terminal of an arm or side bar by means of a pin 16 or like connection, and this block operates in the groove 13, and the pin or fastening 16 travels in the slot 14. The provision of the block or slide 15 secures an extended bearing-surface between the arm and the chair-section and prevents binding and a too rapid wear of the slidable connection, which would result if the end of the pin or fastening 16 alone operated in the groove 13 or slot 14.

It is frequently of advantage to disconnect the leg-section from the arms or side bars, whereby the said section may occupy a vertical position no matter to what position the back and seat sections may be adjusted, and to attain this end the end portions 17 of the arms or side bars 11 are made separate and independent of the main portion of the arms and are hinged or pivoted thereto, so as to move radially into a vertical position when released independently of the main portion of the said arms. In order that the back and leg-sections may have simultaneous adjustment, means are provided for connecting the end portions 17 with the body of the arms, and, as shown, these means consist of a spring-plate 18, firmly attached at one end to the body of the arms or side bars and having its free end projecting across the joint formed between the part 17 and the main portion of the arms and apertured, and a pin or stud 19, extending laterally from each part 17 to enter the opening in the free end of the spring-plate.

The leg-section may be one piece, but it is preferred to construct it of two similar members or parts corresponding to the limbs of a patient, so that provision may be had for supporting the limbs at different positions, which is of advantage when performing operations relating to obstetrics or similar treatment. When the leg-section is in one piece, it will be provided with a single rest, but when formed of two parts or members each will have a rest, substantially as shown, to form a support for a drainage-bowl, surgical instruments, or other appliances. This rest 20 is in the form of a wing or door and closes an opening formed in the leg-section, and is hinged at its lower end, so as to swing downward and outward from its top edge. When closed, the rest 20 comes flush with the outer

side of the leg-section, so as not to be in the way or present any elevation or depression to cause discomfort to the patient. Projections 21 are formed at the lower edge of the rest and enter corresponding notches in the lower side of the opening, into which the rest fits, and a pin, passing through the projections 21 and the portion of the leg-section bordering upon the notches into which the said projections fit, pivotally connects the rest 20 with the leg-section. The parts are so proportioned and disposed that when the rest 20 is thrown into an operative position its lower edge will engage with the front side of the leg-section below the opening into which the rest closes and hold the same in an approximately horizontal position or about at right angles to the leg-section, thereby obviating the necessity of providing a brace or other means to support the rest in an operative position.

The chair proper has connection with the base or stand, so as to be capable of tilting longitudinally and laterally, and, as shown, a hinge 22 is provided, and its members have connection with the seat-section and the top piece 1, respectively, one member of the hinge, as 23, having pivotal connection with the top piece 1, so as to admit of the chair tilting laterally. This pivotal member 23 has an edge portion curved on the arc of a circle whose center corresponds with the pivot about which the member 23 turns, and this curved edge is formed with a series of notches 24 to be engaged by the end of a hand-latch 25, fulcrumed to the top piece 1 of the base and held in working relation by means of a spring 26. When the latch 25 is disengaged from the hinge 22, the chair can be tilted laterally in either direction, and after the desired adjustment is secured the latch 25 is permitted to engage with a notch 24 and secure the chair in the located position.

A lever 27 extends transversely of the base or stand and is fulcrumed at one end to a front leg, and is provided at its opposite end with a foot-latch 28, which is adapted to engage with a notched segment or plate 29, so as to hold the lever in an adjusted position, and this lever is connected intermediate of its ends to the seat-section 8 by means of a bar 30, the latter having hinge or pivotal connection at its extremities with the parts to which it is attached. In order to admit of the structure folding into a small compass, the bar 30 is formed of two parts which are hinged or pivotally connected together, and a stiffener 31 is provided to strengthen and brace the hinged parts when the same are in alinement. This stiffener consists of a stout wire or rod having its end portions bent about at right angles and entering openings in the parts comprising the bar 30 upon opposite sides of their hinged extremities. By a proper manipulation of the lever 27 the chair is tilted longitudinally and caused to assume any desired position from a horizontal to a sitting position, and by having the bar 30 hinged to

the lever provision is had for admitting of the chair being tilted laterally without causing any binding or straining of the several connections.

5 A plate 32 is secured to the under side of the seat-section 8 and projects a short distance to the rear of the said section, and a slide-bar 33 is pivoted to the projecting end of the plate and operates through a keeper 10 34, applied to the back-section near its upper or outer end. This slide-bar is formed with a series of notches 35, and a hand-latch 36, fulcrumed to the back-section, is adapted to engage with any one of the notches 35, so as to 15 hold the slide-bar in an adjusted position.

A spring 37 is provided to engage with the hand-latch and compel the same to engage with the notches of the slide-bar. The outer portion of the hand-latch is conveniently situated to be readily grasped when it is required 20 to disconnect the hand-latch from the slide-bar to adjust the sections comprising the chair to any desired position. The pivotal connections between the back and seat sections and the slide-bar and plate are out of 25 alinement. Hence when adjusting the chair-sections the slide-bar 33 will move relative to the back-section, and when locked the several sections will be held in the located position. 30

Referring to Fig. 7, the adjusting-bar 38 is similarly disposed to the corresponding part 3 and is formed at its free end with a series of transverse grooves 39 to receive the projecting edge of a plate 40, secured to the rear cross-bar 5 of the base or stand, so as to hold the leg-sections in an adjusted position. A 35 keeper 41 is applied to the cross-bar 5, so as to direct the adjusting-bar 38 in its movements. An obvious construction to that just described would be to locate the free end of the adjusting-bar 38 below the bar 5 and to 40 invert the parts 40 and 41, so that to release the adjusting-bar 38 from the plate 40 it can be moved downward at its free end instead of upward, as shown. This disposition of the 45 parts will necessitate the provision of a spring for holding the bar 38 in engagement with the plate 40, and such spring may be of any preferred design and located as found most advantageous, and as this arrangement of the 50 parts is perfectly obvious an illustration is not deemed necessary, since the showing would be a mere inversion of the parts, as illustrated. 55

The front leg-section is retained in place by means of a hook 42 and a pin or fastening 43, the hook having pivotal connection with a front leg and the pin being applied to the 60 top piece of the base or stand. A foot-rest 44 is hinged at its inner edge to the front leg-section and is adapted to fold against the latter, and when lowered into an operative position its inner edge will abut against the 65 front side of the leg-section and support the foot-rest and limit its downward movement.

The hinge connection between the chair

proper and the base may have any form so long as it will admit of the lateral tilting of the chair, and, as shown, it consists of end 70 brackets 45 and an intermediate plate 46, the latter having its terminal portions bent about at right angles to overlap the vertical portions of the end brackets, and a pin or rod 47, passing through coincident openings in 75 the overlapping parts of the end brackets and intermediate plate and forming the pivotal connection between them. The end brackets 45 are secured to the top piece of the base, and the intermediate plate has connection with the seat-section of the chair, 80 but the result would be the same if the position of the parts were reversed. A slotted plate 48 is secured at one end to an edge portion of the seat-section, and a binding-screw 85 49, having screw-thread connection with the base or stand and operating through the slot in the plate 48, serves to hold the latter and the chair in an adjusted position. Upon 90 loosening the binding-screw 49 the chair can be tilted laterally to any required position, which position when attained is preserved by retightening the binding-screw.

In Fig. 9 is shown a somewhat different construction of the means employed for adjusting 95 and securing the chair when tilted laterally, and in this case the pivotal member 50 of the hinge between the chair and base or stand is formed with a handle or lever 51, and the latter is provided with a hand-latch 52, 100 which is adapted to engage with a notched segment or plate 53, secured to the base, so as to hold the handle or lever in an adjusted position. This handle 51 provides an increased leverage, whereby the lateral tilting 105 of the chair is rendered comparatively easy and can be accomplished by one hand, thereby leaving the other hand free for any required purpose.

It will be understood that the several sections 110 comprising the chair proper may be suitably upholstered or finished, according to the style of the appliance and the purpose for which it is designed, and in order to secure strength the edge portions of the sections may 115 be reinforced by metal strips, provided the said sections are constructed of wood.

The arms or side bars may be either straight or curved and may be upholstered or not, as required, and the device in its entirety may 120 have any configuration or be embellished according to the caprice of the designer.

Having thus described the invention, what is claimed as new is—

1. The combination with a base or stand, 125 and a table, of a hinge connection between the chair and base, and having one member firmly secured to the chair and its other member pivotally connected with the base, and means for turning the hinge upon its pivotal 130 connection with the base and securing the same positively in an adjusted position, substantially as and for the purpose set forth.

2. The combination with a base or stand,

and a chair, of a hinge connection applied to the table and having a member pivotally connected with the base and provided with a curved portion having a series of notches, and
 5 a latch adapted to engage with one of the series of notches and secure the pivoted member of the hinge in an adjusted position, substantially as and for the purpose set forth.

3. In a convertible chair, the combination
 10 of a series of three sections hinged or pivotally connected together, arms or side bars pivoted between their ends to the middle section and having their end portions widened, blocks having pivotal connection with the widened
 15 terminals of the said arms, and plates secured to the under or rear side of the end sections and having an edge portion bent to extend at right angles thereto, and having the bent portions depressed in their inner sides and longitudinally slotted to receive the said blocks
 20 and their connections with the arms, substantially as set forth.

4. In a convertible chair, the combination of a seat, a leg-section hinged to the seat at
 25 its lower corner, a back hinged at the opposite end to the seat at its upper corner, side bars having pivotal connection with the seat

and slidable connection with the back and leg sections, a plate secured to the bottom side of the seat and projecting beyond the rear end
 30 thereof a distance corresponding to the thickness of the back, a slide-bar pivotally connected to the projecting end of the said plate, and means for securing the slide-bar to the back, whereby the several parts are held in
 35 an adjusted position, substantially as shown and described.

5. The combination with a base or stand, and a chair having pivotal connection therewith, of a lever, a bar interposed between the
 40 lever and chair and hinged to each and composed of parts which are hinged together and adapted to fold upon each other, and a stiffener to extend across the joint between the parts to strengthen and brace the hinged
 45 joint, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EDWARD J. WELLS.

Witnesses:

B. F. STUBBLEFIELD,

A. L. CARRIGER.