

No. 612,760.

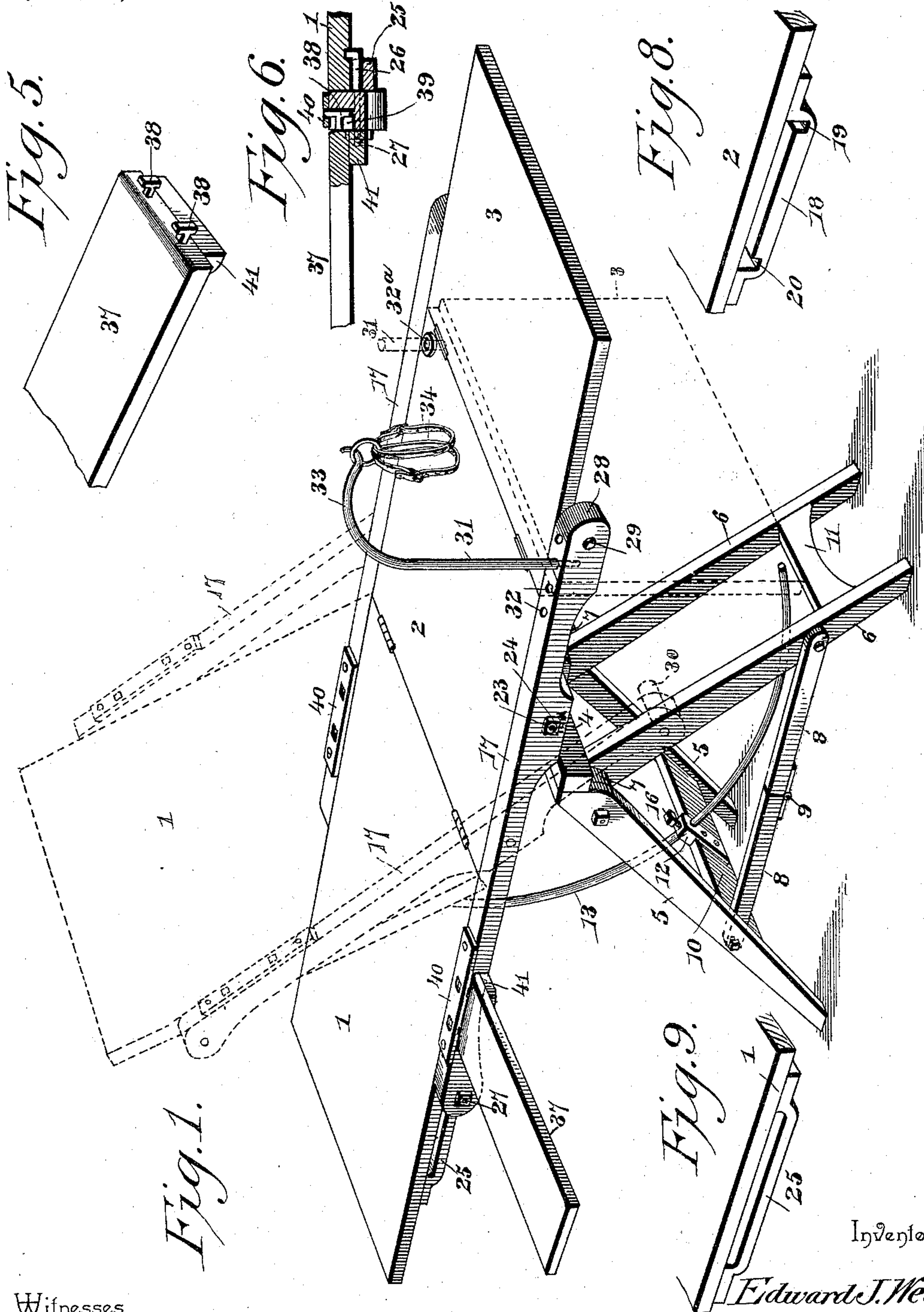
Patented Oct. 18, 1898.

E. J. WELLS.  
SURGICAL CHAIR.

(Application filed July 28, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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By his Attorneys,

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Fig. 3.

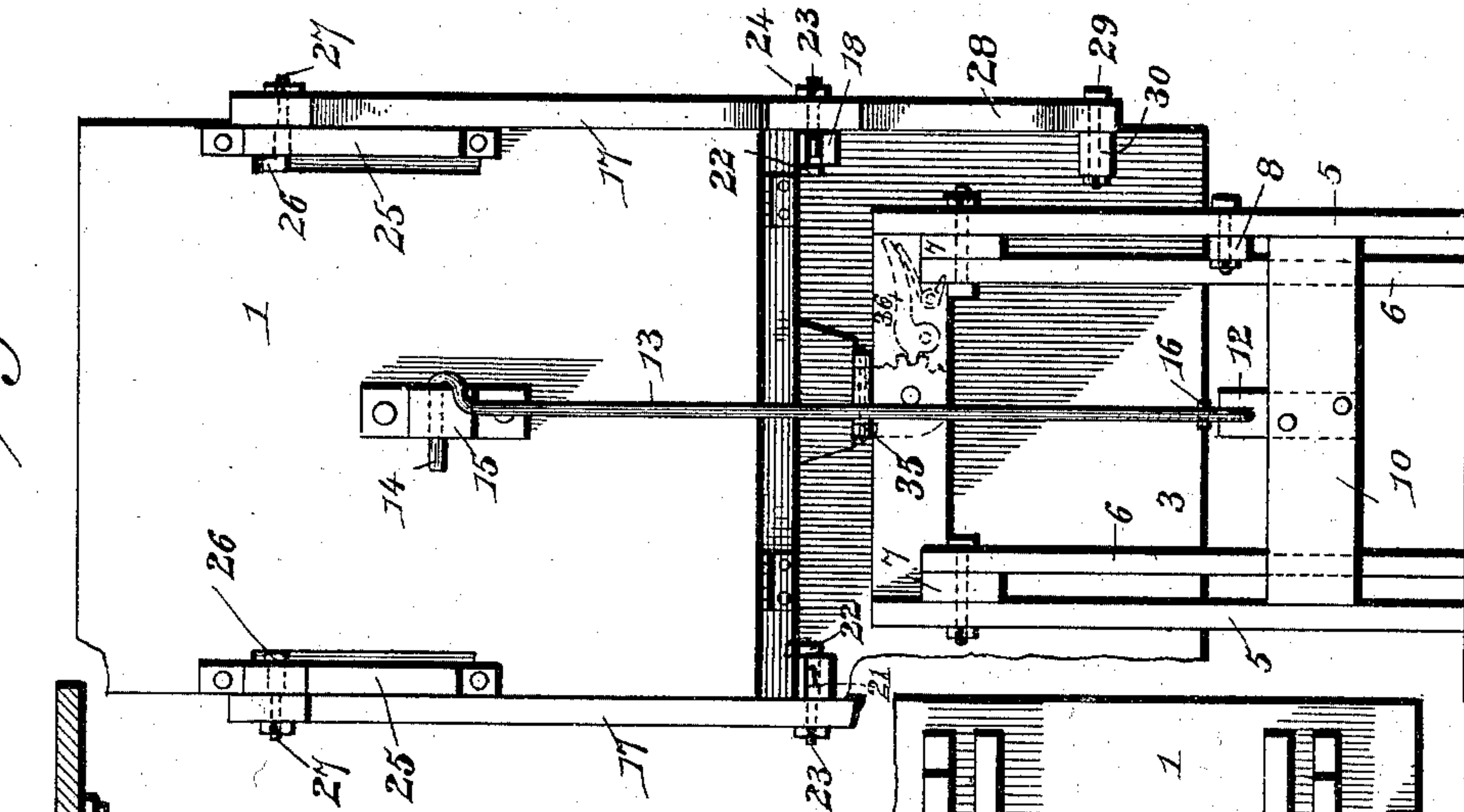


Fig. 2.

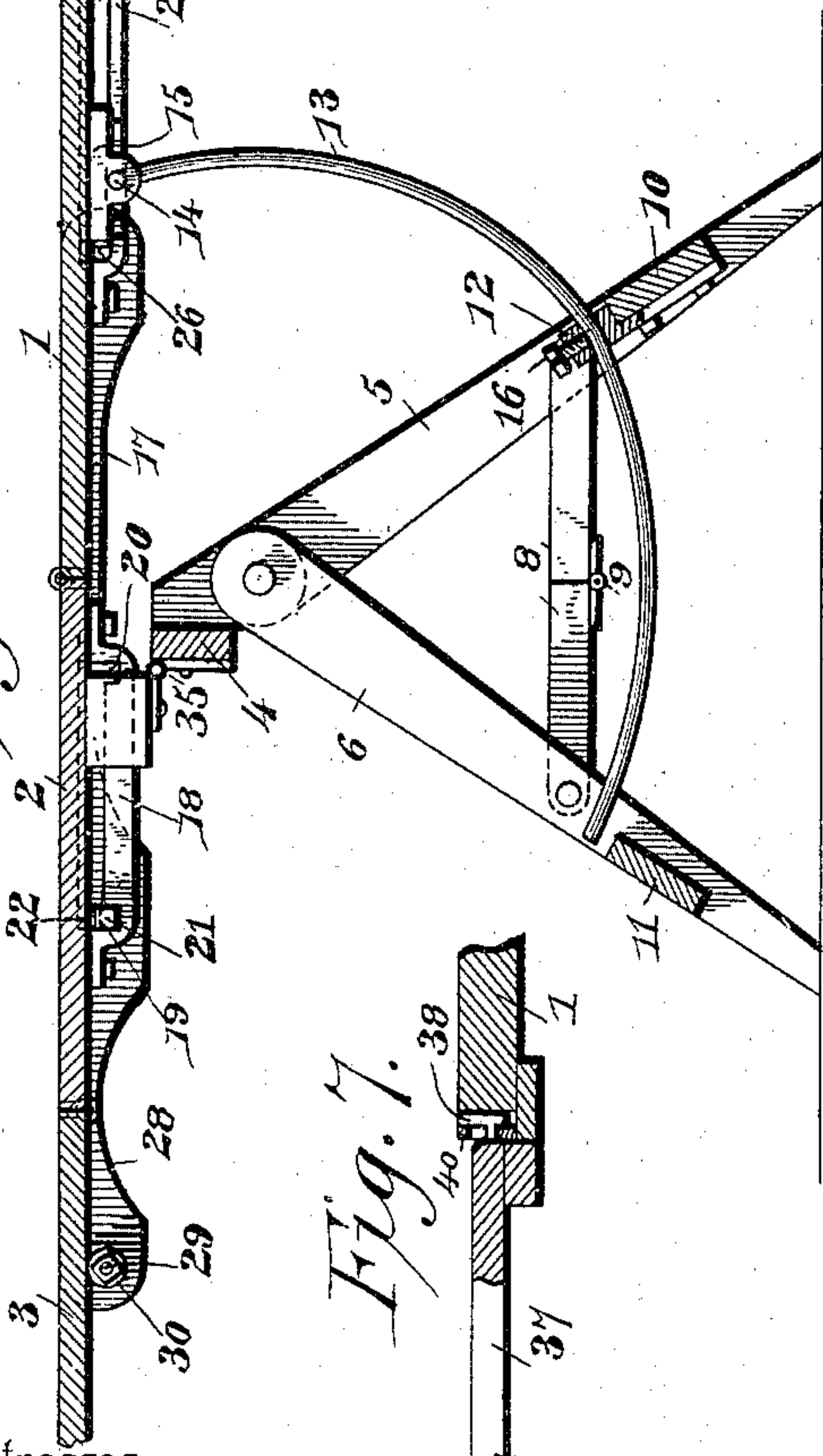
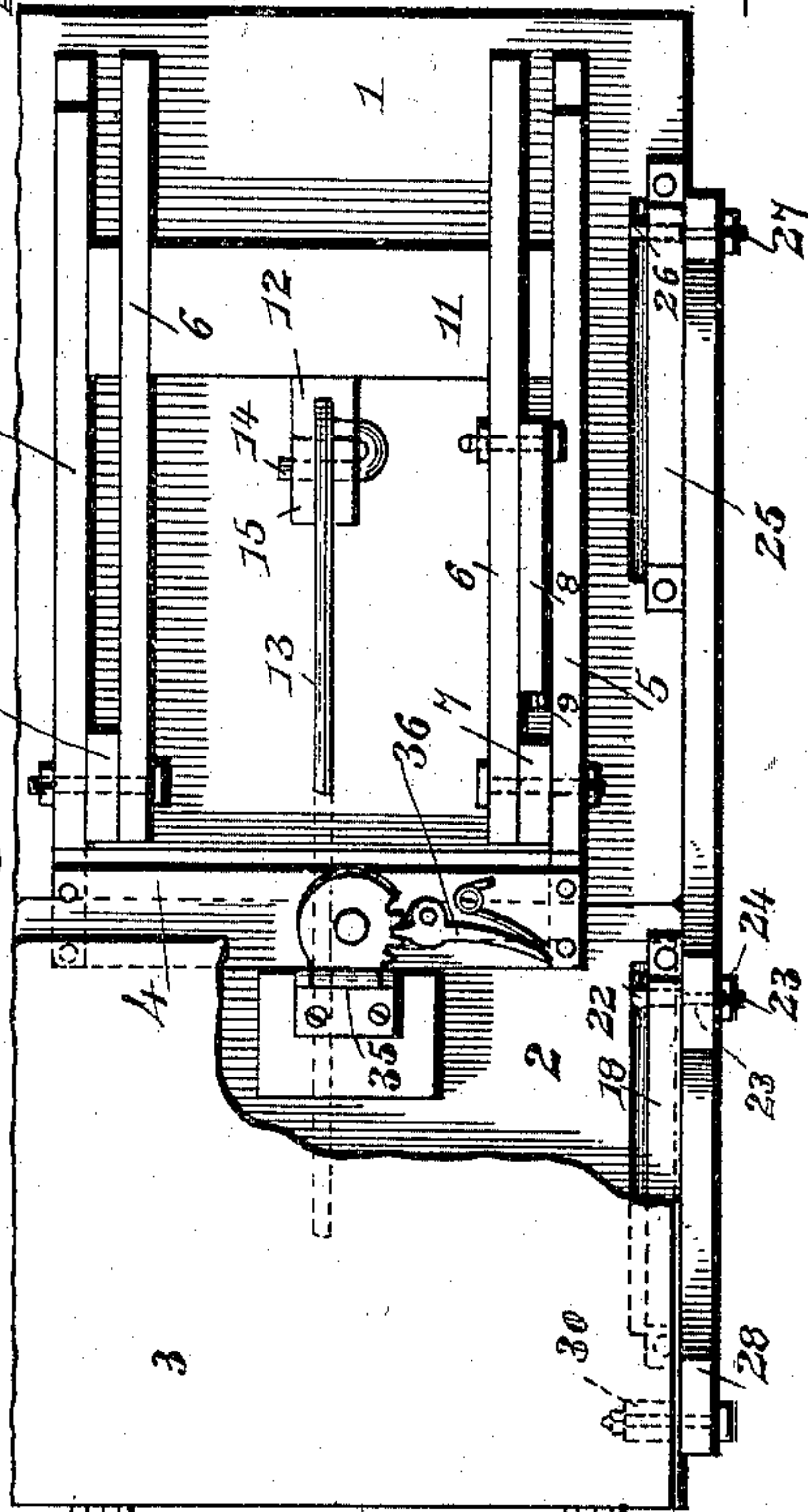


Fig. 1.



Fig. 4.



Witnesses

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# UNITED STATES PATENT OFFICE.

EDWARD J. WELLS, OF MORRISTOWN, TENNESSEE, ASSIGNOR TO THE  
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## SURGICAL CHAIR.

SPECIFICATION forming part of Letters Patent No. 612,760, dated October 18, 1898.

Application filed July 28, 1897. Serial No. 646,201. (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.

My invention relates to folding or adjustable chairs of that class which are convertible into operating-tables or are adapted to be arranged with the parts in any desired relative positions to suit the subject and the requirements of the operation to be performed; and the invention consists, essentially, in an improvement upon the construction set forth in a former patent, No. 576,490, granted to me on February 2, 1897.

The object in view is to provide a surgical chair of the portable type wherein the supporting-frame or base is adapted to be folded compactly with relation to the other members of the chair to occupy the minimum space for transportation and storage.

A further object of the invention is to provide a simple and efficient construction and arrangement of means for adjusting the main chair members, including the seat, back, and leg-rest, and for securing said parts in the desired positions with relation to each other and to the supporting-frame or base.

A further object of the invention is to provide an adjustable and removable arm-rest adapted to be arranged in different positions with relation to the main chair members.

A further object of the invention is to provide simple and efficient means for supporting lithotome-stirrups or suspending-loops.

Further objects and advantages of this 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 of a chair constructed in accordance with my invention, the same being shown in its horizontal or table form in full lines and with the back in an elevated position in dotted lines. Fig. 2 is a central longitudinal section of the same, showing the parts in the positions which they occupy in full lines in Fig. 1. Fig. 3 is a rear view. Fig. 4 is an

inverted plan view showing the chair folded. Fig. 5 is a detail view in perspective of a portion of the arm-rest to show the hooks whereby it is detachably secured to a preferred portion of the frame of the chair. Fig. 6 is a detail sectional view of a portion of the arm-rest and the contiguous portion of a chair-arm to show the arrangement of parts when the arm-rest is mounted upon the side arm of the chair, said section being taken in the plane of the slide, whereby the contiguous portion of the chair-arm is mounted upon the chair-back. Fig. 7 is a detail sectional view of a portion of the arm-rest as seen when applied to the edge of a chair-back or contiguous portion of the frame of a chair. Fig. 8 is a detail view in perspective of the chair-back guide to show the means for mounting the contiguous or intermediate portion of the chair-arm upon the seat and also showing the contiguous portion of the seat. Fig. 9 is a similar view showing the chair-back guide.

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

In the preferred embodiment of my invention, which is illustrated in the drawings, the chair comprises, essentially, a supporting-frame or base, a chair-seat mounted for longitudinal and lateral rocking movement upon the frame or base, a chair-back hingedly connected to the chair-seat at one edge, and a leg-rest hingedly connected to the opposite edge of the chair-seat. The chair-back 1 is connected to the chair-seat 2 for upward-swinging movement from the plane of said chair-seat, as will be seen by reference to Fig. 1, while the leg-rest 3 is mounted upon the chair-seat for downward-swinging movement from the plane thereof, (also shown in Fig. 1,) and the chair-seat is mounted upon a cross-bar 4, which forms one member of the supporting-frame or base. This supporting-frame or base comprises hingedly-connected front and rear folding members, the rear member having legs 5, connected at their upper ends by said cross-bar 4, and the front member having legs 6, which are pivotally mounted upon the rear legs to fold therebetween. Spacing-blocks 7 are preferably in-



terposed between the contiguous pivotally-connected upper extremities of the front and rear legs, and a sectional brace 8 connects the front and rear legs at one side of the base, being terminally mounted upon the inner surface of the rear leg and the outer surface of the front leg, whereby it operates in the plane of the contiguous spacing-block. The members of this sectional brace are hingedly connected, as shown at 9, to cause the contiguous extremities of said brace members to fold upwardly, and it is obvious that in practice this brace may be duplicated at opposite sides of the base, although I have deemed it necessary to show but one in the drawings. The rear legs are connected contiguous to their lower ends by a transverse brace 10, and the front legs are correspondingly connected by a transverse brace 11, and mounted upon the brace 10 is a guide 12 for a segmental brace-rod 13, said brace-rod being pivotally connected at its upper end by means of a transverse spindle portion 14 with the chair-back 1 contiguous to its center, said transverse spindle portion of the brace-rod being mounted in a bearing 15 of any suitable construction on the chair-back. It is obvious that the chair-back may be secured at any desired inclination or in a horizontal or vertical position by fastening the brace-rod 13 at the suitable adjustment in the guide 12, and in order to facilitate the fastening of the brace-rod I provide a set-screw 16 to impinge terminally against the brace-rod within the guide 12.

The connection between the seat, back, and leg-rest is accomplished by the use of a chair arm or arms 17, mounted at an intermediate point upon the chair-seat for pivotal and sliding movement, and also mounted at its upper end upon the chair-back for pivotal and sliding movement. In the construction illustrated in the drawings the chair-seat is provided with a pendent guide 18, having terminal front and rear seats 19 and 20 for the reception of a slide 21, which is fitted in the guide. This slide is provided with a headed extremity 22 to prevent it from becoming accidentally displaced from the guide, and the cross-sectional construction thereof is such as to adapt it to normally occupy a position in one of the terminal seats 19 and 20. When the slide is traversing the guide between the seats 19 and 20, the head operates in a groove formed in the under surface of the seat-section, said groove being shown in dotted lines in Fig. 2. Projecting from the outer end of the slide is a pivot-pin or extension 23, upon which is mounted the chair-arm, and the parts may be clamped at any desired adjustment by means of a nut 24, threaded upon the outer extremity of said pivot-pin and bearing against the exterior surface of the chair-arm. The chair-back is similarly provided with a pendent guide 25, which, however, is devoid of terminal seats, a slide 26 being mount-

ed in the guide and having an outwardly-extending pivot-pin 27, upon which is mounted the upper extremity of the chair-arm. The guides 18 and 25 are of approximately the same length, and hence the chair-back is capable of being moved with relation to the chair-seat when the slide 21 is fitted in either of the terminal seats of the guide 18.

The chair-arm is provided beyond its point of pivotal and sliding connection with the chair-seat with a leg extension 28, having an inwardly-extending supporting-pin 29, preferably carrying an antifriction-roll 30, adapted to traverse the surface of the leg-rest 3. It is obvious that when the slide 21 is arranged in the seat 19 of the guide 18 the leg extension of the side arm projects beyond the front edge of the chair-seat, and hence when the supporting-pin 29 is beneath the leg-rest the latter is supported in the horizontal position indicated in full lines in Fig. 1, whereas by moving the slide 21 into engagement with the rear seat 20 of the guide 18 the supporting-pin 29 may be withdrawn from the path of the leg-rest to allow the latter to drop to a vertical position. (Indicated by dotted lines in Fig. 1.) When the slide 21 is fitted in either of the seats 19 20, the chair-arm has merely a pivotal movement with relation to the chair-seat, while the swinging movement of the chair-back causes the slide 26 to move longitudinally in the guide 25, and it is obvious that when the supporting-pin 29 is in the path of the leg-rest the adjustment of the chair-back around its point of hinged connection with the chair-seat will be accompanied by a corresponding adjustment of the leg-rest.

For lithotomical operations I employ a supporting-rod 31, removably seated in either of a series of sockets 32 in the chair-arm, preferably in the front end or portion 28 of the chair-arm and having an inwardly-extending arm 33, which supports a plurality of detachably-connected stirrups or suspending loops 34. It is preferable under certain circumstances, however, to erect the supporting-rod upon the chair-seat, for which purpose I provide the chair-seat contiguous to one of its front corners with a socket 32<sup>a</sup>. Obviously the arrangement of the supporting-rod upon the forward extremity of the arm enables me to dispose it in advance of the front edge of the seat-section (where it is more convenient under ordinary circumstances to place it) without straining the foot-section, which, without additional bracing, would be incapable of supporting the additional weight. The arms are adapted to carry this additional weight, and at the same time the longitudinal adjustment thereof enables me to vary the position of the supporting-rod to suit the peculiar conditions of the operation to be performed. The detachable connection between the stirrups or suspending loops 34 and the inwardly-extending arm 33 of the supporting-rod is preferable, as providing for the engage-



ment of the stirrups or loops with the terminal upturned hook of said arm subsequent to the application thereof to the patient.

As above mentioned, the chair-seat is preferably mounted upon the supporting-frame or base for both longitudinal and transverse rocking movement; but as the specific construction of the double hinge forms no part of my present invention it will be sufficient to state that the hinge 35 has one of its leaves pivotally mounted upon the cross-bar 4 for transverse swinging or rocking movement in a vertical plane and that a suitable fastening device 36 is employed in connection therewith to retain the pivotal hinge-leaf at the desired adjustment, and hence to retain the chair-seat at the desired transverse inclination or in a truly horizontal position. It will be understood that the transverse tilting of the chair-seat may be accomplished without sufficiently straining the brace-rod 13 as to detract from the efficiency of the same, for the reason that the rod is of cross-sectionally round construction, and hence is capable of turning in the guide 12, and is sufficiently pliable to yield contiguous to the spindle 14. Ordinarily the lateral tilting or rocking of the seat-section is comparatively slight; but obviously when it is desired to move the same through a considerable angle the upper extremity of the segmentally-curved brace may be disconnected from the bearing in which it is fitted, said extremity being constructed with a straight transverse spindle for this purpose. The detachment on the upper extremity of the brace need not, however, deprive the chair of the bracing action afforded thereby, for the reason that while the side arms may be perfectly capable of supporting the back-section in the desired laterally-tilted position, particularly when extended as shown in Fig. 2, the upper transverse spindle of the brace-rod may be arranged in contact with the rear surface of the back-section, whether the same is laterally tilted or not. Thus the brace is adapted to support the back-section even when disconnected therefrom.

The means which I have illustrated for maintaining the chair-seat at the desired adjustment against longitudinal swinging movement consist in the first place of the brace-rod 13, hereinbefore described, which is designed to hold the chair-back at the desired adjustment, and in the second place in the chair-arms, which are pivotally connected to the chair-seat and to the chair-back and are adapted by means of the nuts at the outer extremities of the pivot-pins on the slides to be locked in the desired relative positions.

In connection with the above-described construction I employ an arm-rest 37, provided at its inner end with T-shaped heads 38 to engage suitable sockets in the chair-frame. In Figs. 1 and 6 I have shown the chair-arm provided with sockets 39 for the reception of the T-heads 38, a perforated plate 40 being arranged to cover said sockets and having

openings of sufficient size to receive the upper extremities of the T-heads. The inner end of the arm-rest is also preferably provided with a depending cleat or pressure-block 41 to bear against the contiguous surface of the frame, and thereby brace the rest against downward deflection under pressure. In Fig. 7 I have shown an equivalent construction of socket formed in the edge of the chair-back, it being understood that the arm-rest is adapted to be applied to any suitable and convenient portion of the chair-frame. The advantage in mounting the arm-rest upon the chair-arm resides in the fact that as the chair-arm is adjustable the arm-rest may be arranged in the desired position with relation to the chair-back to suit the operation and position of the subject.

It will be understood that while in the drawings I have illustrated a preferred form of the various features of improvement constituting my present invention I desire not to be limited strictly to the disclosure made therein nor to the use of all of said features in a single chair, as it is obvious that various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. In a convertible chair, the combination of a base or supporting-frame, of hingedly-connected seat and back sections, the former being mounted for transverse tilting movement upon the base or frame, means for securing the seat-section at the desired transverse adjustment, a segmentally-curved brace-rod detachably connected at one end to the back-section, by means of a transverse terminally-free spindle fitted in a bearing on the back-section, said brace-rod being extended longitudinally of the chair, and through a guide on the base or supporting-frame, for linear movement in the guide when the back-section is adjusted, and means for securing the brace-rod at the desired linear adjustment in the guide, substantially as specified.

2. In a convertible chair, the combination with a base or supporting-frame, of hingedly-connected seat, back, and leg sections, a side arm having a pivotal and sliding connection with each of the seat and back sections, and a detachable connection at its front end with the leg-section, for connection with and disconnection from the latter, respectively by forward and rearward adjustment of the arm, whereby the leg-section may be disconnected from the arm to depend vertically when the back-section is extended in an approximately horizontal position, substantially as specified.

3. In a convertible chair, the combination with a base or supporting-frame, of hingedly-connected seat, back, and leg sections, an arm mounted at an intermediate point for pivotal and sliding movement upon the seat-section,



having a sliding connection with the back-section, and provided at its front end with a supporting-pin adapted, by forward adjustment of the arm, to be arranged in the path of the downward-swinging movement of the leg-section, and adapted, by backward adjustment of the arm, to be withdrawn from the path of the leg-section, to allow the latter to depend vertically when the back-section is extended in an approximately horizontal position, substantially as specified.

4. In a convertible chair, the combination with a base or supporting-frame, of hingedly-connected seat, back and leg sections, a terminally-notched guide on the seat-section, a side arm provided at an intermediate point with a slide fitted in said guide and adapted to be fitted in either of the terminal notches thereof, a sliding connection between the upper end of the side arm and the chair-back, and a sliding connection between the front end of the side arm and the leg-section, substantially as specified.

5. In a convertible chair, the combination with a base or supporting-frame, of hingedly-connected seat, back and leg sections, guides carried by the seat and back sections, slides fitted in said guides for linear adjustment, a side arm pivotally connected at an intermediate point to the slide in the guide of the seat-section, and pivotally connected at its upper end to the slide in the guide of the back-section, means for securing said slides at the desired adjustment in the guides, and a connection between the side arm and the leg-section, substantially as specified.

6. In a convertible chair, the combination with a base or supporting-frame, of hingedly-connected seat, back and leg sections, guides carried by the seat and back sections, the guide on the seat-section having terminal seats, slides fitted respectively in said guides, the slide in the guide of the seat-section being adapted to be fitted in one of the terminal seats thereof, a side arm pivotally connected at an intermediate point and at its upper end respectively to said slides on the seat and back sections, and provided at its lower end with a supporting-pin arranged in the path of the leg-section, and clamping devices for securing said slides at the desired adjustment in the guides, substantially as specified.

7. In a convertible chair, the combination with a base or supporting-frame, of seat, back, and leg sections, a side arm permanently connecting the seat and back sections and hav-

ing a detachable connection with the leg-section, said side arm being mounted to project terminally in advance of the front edge of the seat-section, and a stirrup-supporting rod, for lithotomical operations, seated upon the front end of the side arm, substantially as specified.

8. In a convertible chair, the combination with a base or supporting-frame, of seat, back, and leg sections, a side arm connecting said sections and mounted for longitudinal adjustment upon the seat-section, to vary the position of its front end with relation to the front edge of the seat-section, and a stirrup-supporting rod, for lithotomical operations, carried by the side arm, substantially as specified.

9. In a convertible chair, the combination with a base or supporting-frame, of connected seat, back and leg sections, a side arm connecting said sections and mounted for longitudinal adjustment to vary the position of its front end with relation to the front edge of the seat-section, said front end of the side arm being provided with sockets, and a stirrup-supporting rod, for lithotomical operations, removably seated in one of said sockets, substantially as specified.

10. In a convertible chair, the combination of a base or supporting-frame, seat, back and leg sections mounted thereon for relative adjustment, and a side arm, one of said members being provided with a plurality of spaced sockets open laterally, a socket-plate having openings communicating with said sockets, and an arm-rest provided with terminal T-heads to fit in the sockets in said chair member, with the upper extremities of the heads in engagement with the openings in said plate, substantially as specified.

11. In a convertible chair, the combination with a base or supporting-frame, and seat, back and leg sections, of a side arm connecting said sections and mounted for linear adjustment parallel with the plane of the back-section, and an arm-rest detachably mounted upon the side arm contiguous to its point of connection with the back-section and adjustable therewith, substantially as specified.

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:

JOHN A. STUBBLEFIELD,  
W. J. COBBLE.