

(No Model.)

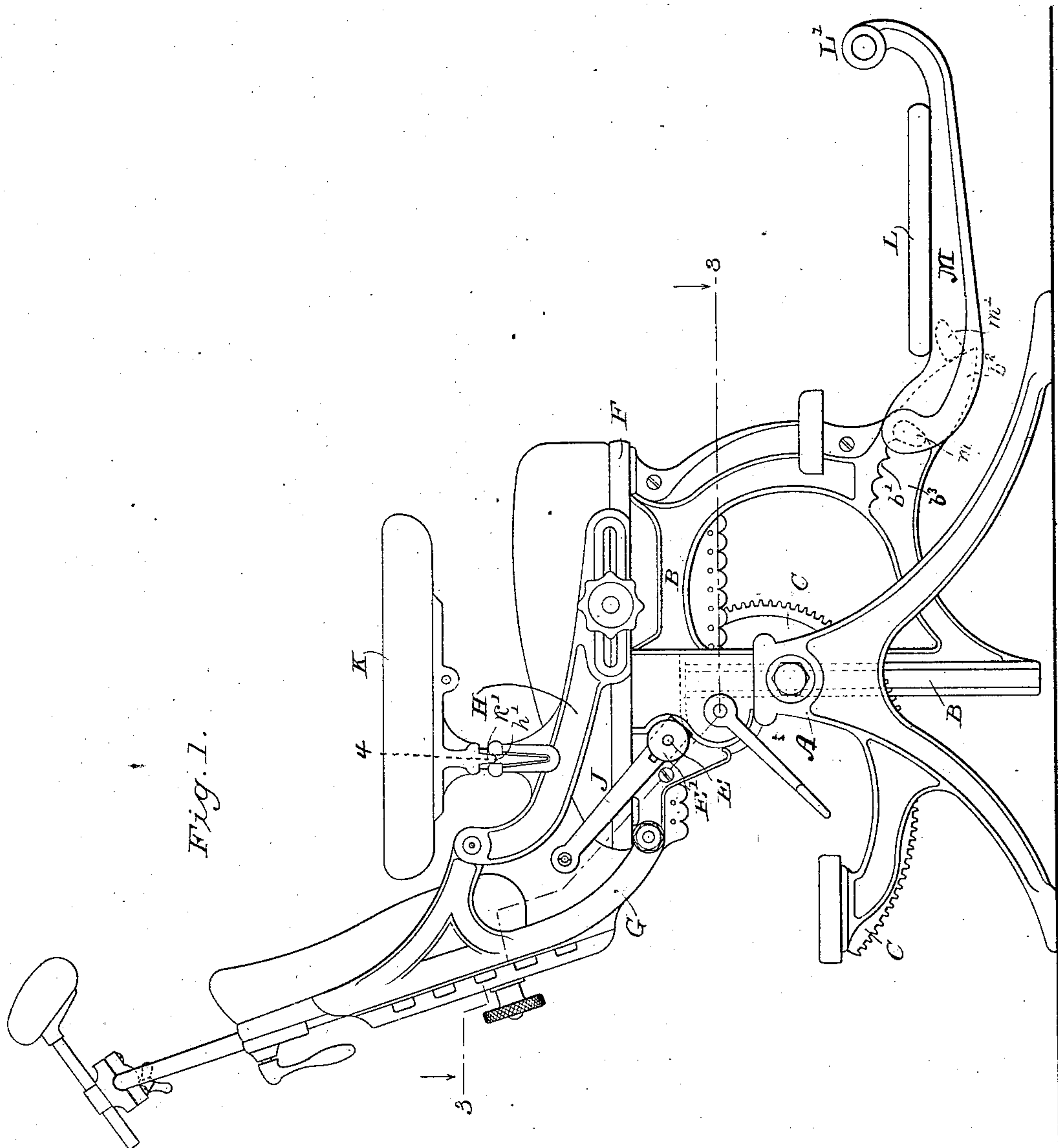
4 Sheets—Sheet 1.

A. W. BROWNE.

ADJUSTABLE CHAIR.

No. 299,458.

Patented May 27, 1884.



WITNESSES

Wm A. Skinkle  
Edwin A. Newman.

INVENTOR

Arthur W. Browne,

By his Attorneys

Baldwin, Hopkins & Peyton.

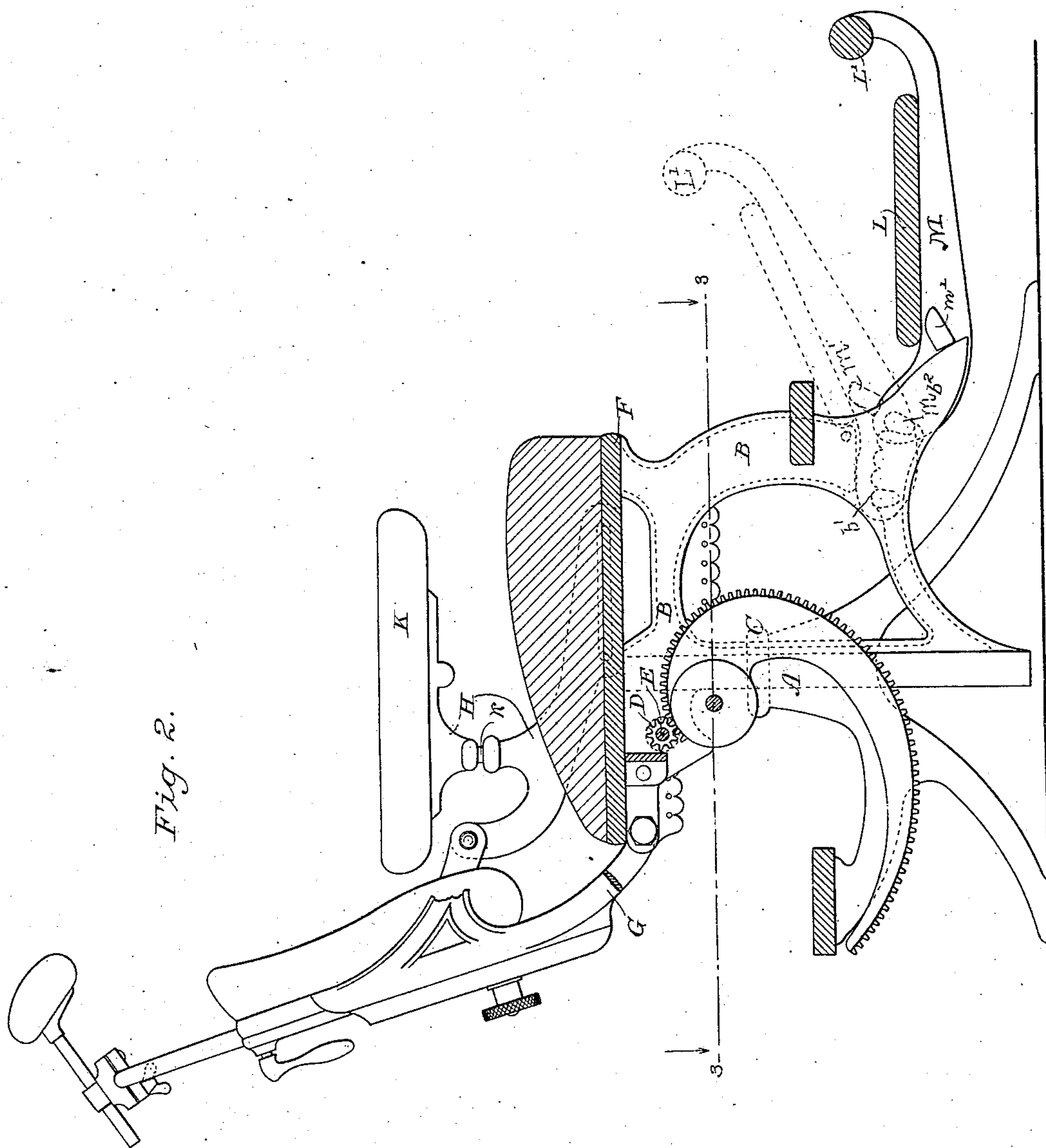
(No Model.)

4 Sheets—Sheet 2.

A. W. BROWNE.  
ADJUSTABLE CHAIR.

No. 299,458.

Patented May 27, 1884.



WITNESSES

Wm A. Skink  
Edwin A. Newman.

INVENTOR

Arthur W. Browne,  
By his Attorneys  
Baldwin, Hopkins & Peyton.

(No Model.)

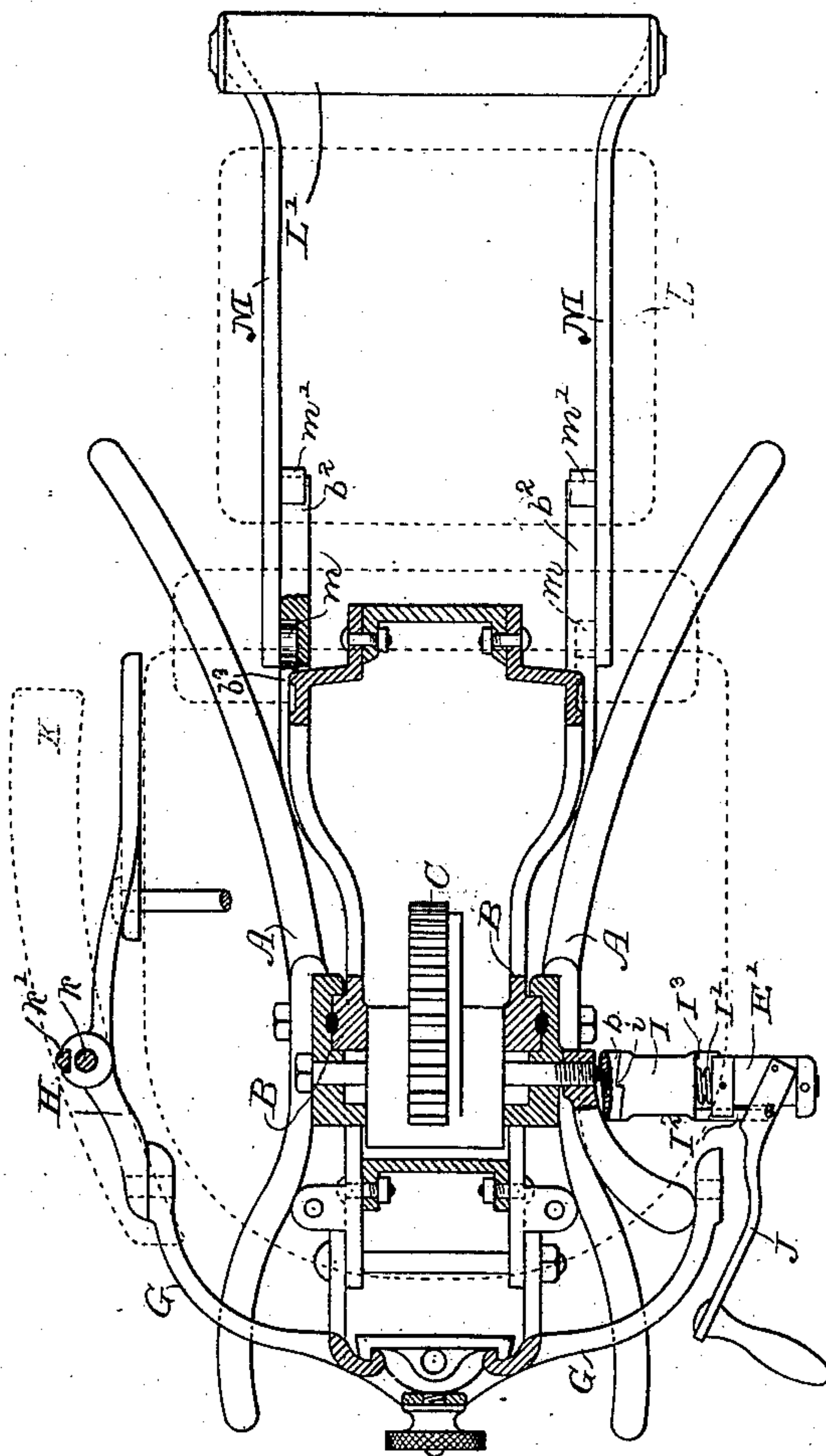
4 Sheets—Sheet 3.

A. W. BROWNE.  
ADJUSTABLE CHAIR.

No. 299,458.

Patented May 27, 1884.

Fig. 3.



WITNESSES

*Wm A. Skink*  
*Edwin A. Newman.*

INVENTOR

*Arthur W. Browne,*  
By his Attorneys  
*Baldwin, Hopkins & Peyton.*



(No Model.)

4 Sheets—Sheet 4.

A. W. BROWNE.

ADJUSTABLE CHAIR.

No. 299,458.

Patented May 27, 1884.

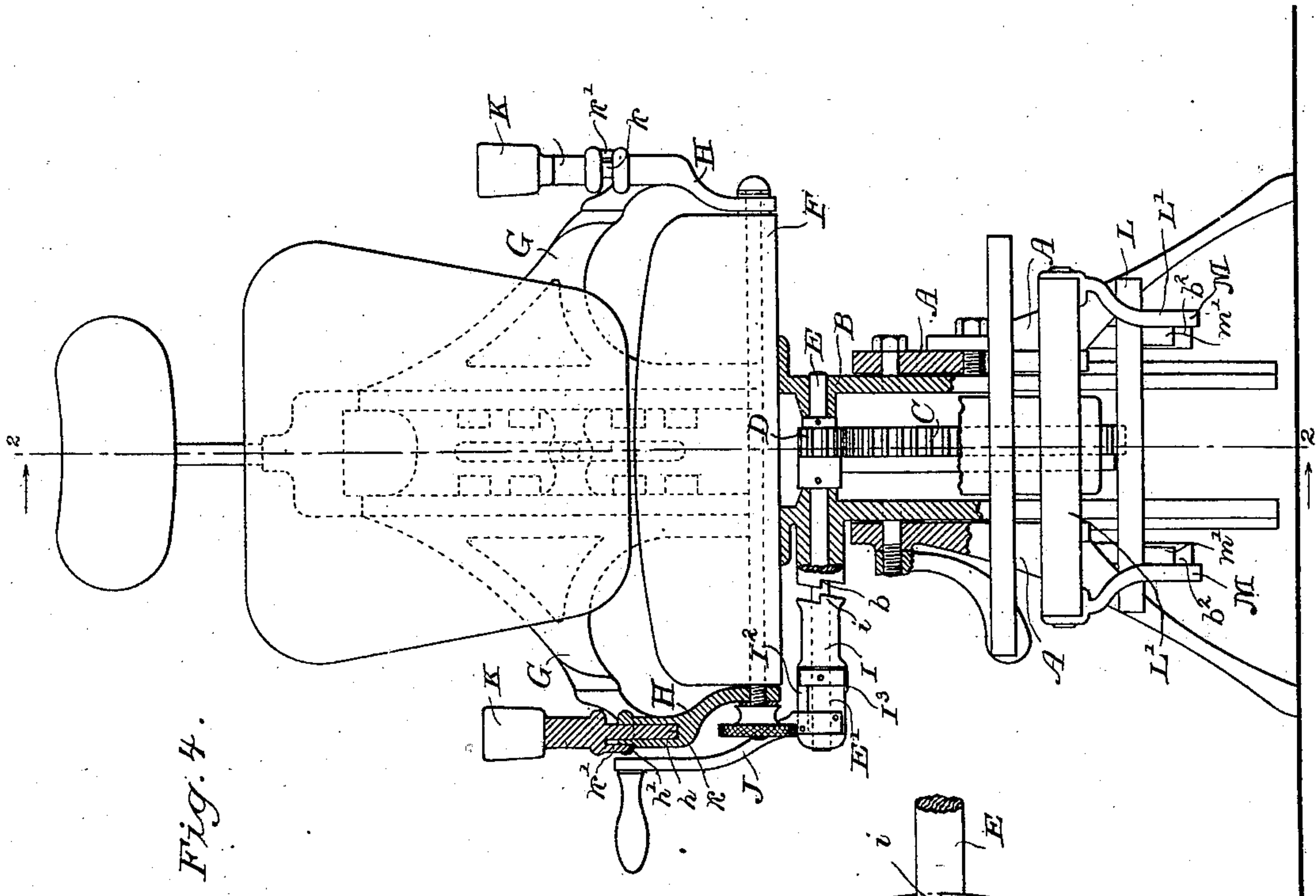


Fig. 4.

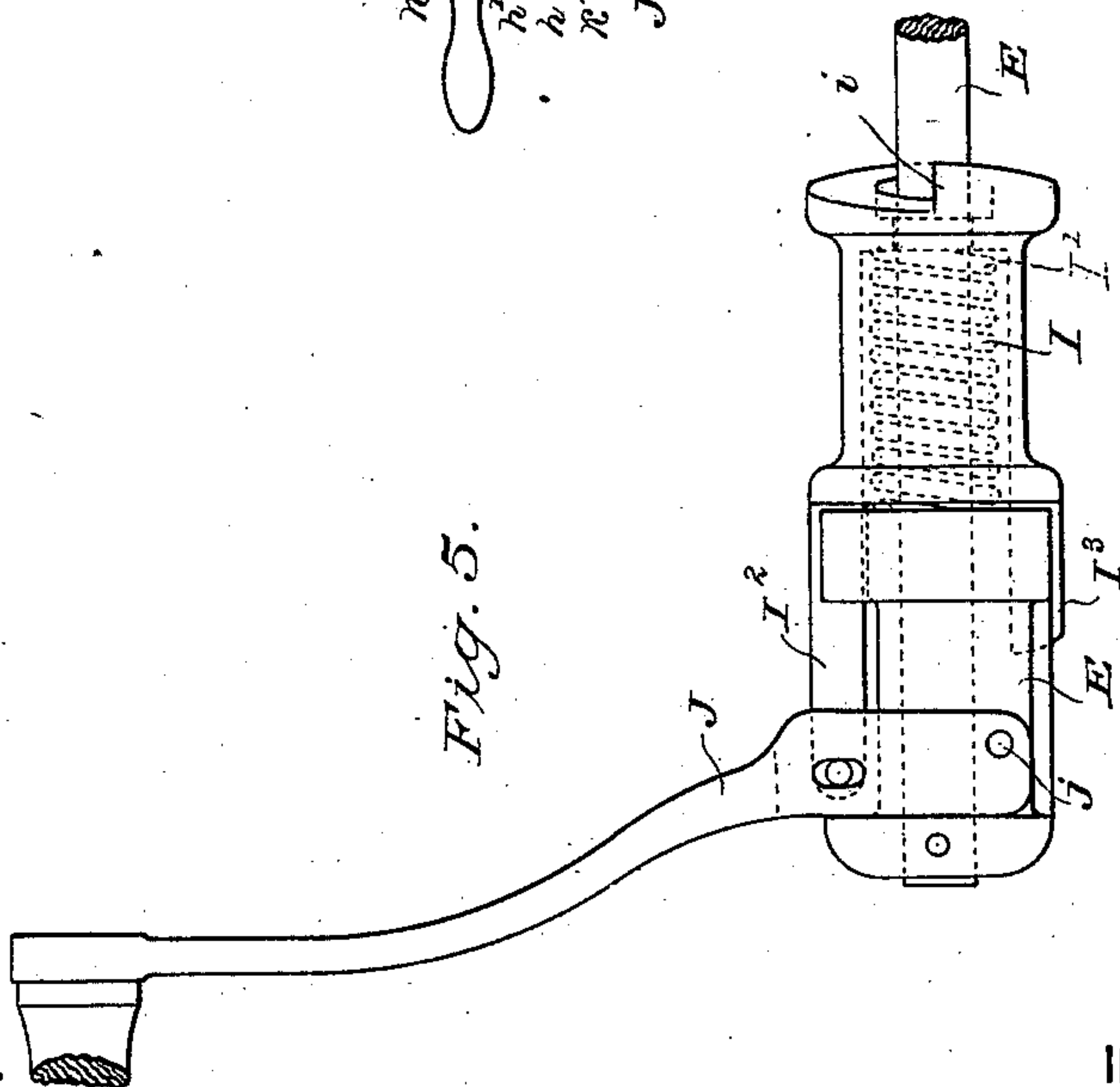


Fig. 5.

WITNESSES .

*Wm A. Skink.*

*Edwin A. Newman.*

INVENTOR

*Arthur W. Browne,*

By his Attorneys

*Baldwin, Hopkins & Peyton.*



# UNITED STATES PATENT OFFICE.

ARTHUR W. BROWNE, OF PLEASANT PLAINS, N. Y., ASSIGNOR TO THE S. S. WHITE DENTAL MANUFACTURING COMPANY, OF PHILADELPHIA, PA.

## ADJUSTABLE CHAIR.

SPECIFICATION forming part of Letters Patent No. 299,458, dated May 27, 1884.

Application filed November 8, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR W. BROWNE, of the village of Pleasant Plains, in the county of Richmond and State of New York, have invented certain new and useful Improvements in Adjustable Chairs, of which the following is a specification.

My invention relates to adjustable chairs more especially designed for the use of dentists; and it constitutes, more especially, an improvement upon the chair invented by Wm. E. Burk, of Philadelphia, Pennsylvania; but it will be understood, of course, that some of my improvements may be used without the others, and in chairs differing in construction from that particularly shown in the accompanying drawings and described herein.

The subject-matter claimed is first fully described in detail as organized in the best ways now known to me, and is then particularly pointed out in the claims at the close of the specification.

In the accompanying drawings, Figure 1 is a side elevation of my improved chair. Fig. 2 is a section therethrough on the line 2 2 of Fig. 4. Fig. 3 is a horizontal section on the line 3 3 of Fig. 1. Fig. 4 is a vertical section on the line 4 4 of Fig. 1, and Fig. 5 is a view of my improved elevating-crank detached.

The base of the chair is made up of side frames, A A, in which a slide-frame, B, is fitted to slide vertically. In said chair-base, and between the side portions of the sliding frame B, is mounted a cycloidal or irregularly-shaped figure, C, provided with gear-teeth and a lifting-surface at its periphery, whereby, through the instrumentality of a pinion, D, mounted on a crank-shaft, E, turning in bearings in the slide-frame B, said slide-frame may be vertically adjusted with the expenditure of but little power.

The seat-frame F of the chair is rigidly mounted upon the upper end of the sliding frame. A backward and forward rocking chair-back, G, pivoted under the seat of the chair at its rear side, and jointed to adjustable arms H H, capable of being clamped to the seat-frame, is carried by said seat-frame.

The above construction is substantially the

same as that shown and described in an application of said Wm. E. Burk, filed simultaneously herewith; and as no claim thereto is made by me, it is unnecessary to describe the construction and operation of the aforesaid parts in detail. I refer to said Burk's application for a full description of the aforesaid parts of the improved chair.

My first improvement is directed to a peculiar crank and locking connection, whereby the elevating-pinion, which works upon the cycloid or irregular figure, is revolved by means of a shaft fitted in bearings in the vertically-adjustable slide-frame before described. In said Burk's invention he employs an ordinary crank to rotate the pinion-shaft, and mounts upon said shaft a ratchet-wheel, with which a pawl pivoted to the slide-frame engages, in order to lock the slide-frame in its adjusted position and prevent the descent of said frame until the pawl is released. That construction involves some disadvantages, which my improved crank and shaft-locking arrangement overcomes.

In my improvement the slide-frame carries bearings, in which the pinion-shaft is fitted to revolve. At one side of said bearings the slide-frame is provided with inclined or cam notches *b b*, fitted to receive corresponding projections, *i i*, on the inner end of an endwise-moving sleeve, I, surrounding an extension of the pinion-shaft, and acted upon by a preferably inclosed spring, I'—a coiled spring in this example—so as to engage the locking-shoulders on said sleeve with the locking-notches on the side of the slide-frame. By this means it will be seen that the pinion-shaft is rigidly locked to the slide-frame, and that the descent of the chair-seat and slide-frame is thereby prevented. It is therefore necessary in the adjustment of the chair to withdraw the locking projections on the sleeve I from engagement with the locking-notches of the slide-frame, and this I prefer to accomplish by means of a forked crank, J, pivoted at its ends to an enlargement, E, on the end of the pinion-shaft, and connected between said pivotal points and the handle of the crank with an extension or guide piece, I<sup>2</sup>, of said spring-sleeve.



This extension I<sup>2</sup> of the spring-sleeve I, with which the pivoted crank is connected, is of such length that by connecting the crank with the sleeve the outer or handle end of the crank will be rocked inward toward the chair-seat by the action of the spring within the said sleeve I, as shown in Fig. 3. In addition to the extension or guide piece I<sup>2</sup> of the sleeve I, with which the crank is jointed, the said sleeve is provided at the opposite side with a guide-piece, F', which slides in a groove in the pinion-shaft enlargement E, before mentioned. The normal position of the crank-handle is an inward one, as determined by the force of the spring within the locking-sleeve I, while at the same time the locking-sleeve is engaged with the slide-frame, and the elevating-pinion shaft thereby locked from turning.

When it is desired to elevate or lower the chair, the crank-handle is grasped and rocked outward upon its pivotal connection j with the pinion-shaft enlargement, which action retracts the locking-sleeve or draws it outward, and thereby disengages its locking projections from the locking-notches in the slide-frame and frees the elevating-shaft, which may now be turned, as long as the crank is held in an outward position, as shown in Figs. 4 and 5, so as to raise or lower the chair. As soon as the handle is released the locking-sleeve is immediately projected forward into engagement with its locking-notches, and the pinion-shaft is thereby rigidly locked from rotation, whereby the chair is locked in its elevated position as adjusted.

It will be obvious that if in the operation of the chair, either in raising or lowering it, the crank-handle should escape from the hand of the operator, the locking-sleeve will be immediately projected into engagement with the locking-notches and the shaft locked from turning, and thus the descent of the chair and accidental drop of the patient be thereby prevented.

In addition to what has been stated above, the fact that the crank may remain attached to the elevating-shaft, and still be drawn close to the chair-seat, so as to be out of the way of the operator, is an important feature.

The next feature of my invention is directed to the arm-rests. I connect the arm-rests K K of the chair, in this instance, with the backward and forward adjustable arms H H, so as to enable said arm-rests to be either readily removed or rocked toward or from the patient, while when in its normal position the arm-rest is securely locked in position. To this end the arm or arm-frame H, as the case may be, is provided with a vertical socket, h, to receive a trunnion or pivot-bolt, k, upon which the arm-rest K is mounted. By this means the arm-rest may be turned upon its pivot-bolt, so as to adjust it horizontally in the position desired, either toward the patient or from him. In addition to this the arm-rest is provided with a depending lip or locking projec-

tion, k', which is adapted to enter a corresponding socket or recess, h', in the arm or arm-frame H, to which the pivot-bolt of the arm-rest is fitted, and thereby locks said arm-rest rigidly in a backward and forward direction relatively to the chair-seat, or, in other words, in its normal position when acting as the arm-rest of the chair.

The next feature of my invention is directed to the foot-rest. In this case the foot-board L and foot-rest L' proper are mounted upon side arms, M M, the inner ends of which are provided with lugs or projections m m, adapted to engage with locking-notches b', formed in projecting flanges upon the outer sides of the slide-frame B at its lower front end. In addition to the said locking-lugs m m, the inner sides of the foot-board arms are also provided with lugs or shoulders m' m', which are fitted to work upon inclined surfaces or planes b<sup>2</sup> b<sup>2</sup>, formed on the lower front ends of the slide-frame of the chair. The object of this construction is to permit the foot-board and foot-rest to be adjusted relatively to the chair-seat.

The mode of operation is as follows: By raising the outer end of the foot-board, and shoving the rear locking ends of the foot-board arms backward in their guide-slots b<sup>2</sup> b<sup>2</sup> in the slide-frame, said foot-board is raised so as to cause its outer end to approach the chair-seat, and this action is determined by means of the aforesaid lugs m' m' riding upon the cam-surfaces b<sup>2</sup> b<sup>2</sup>, before described. When the desired adjustment of the foot-rest and foot-board has been obtained, they will be securely locked in their adjusted position, due to the bearing of the lugs m' m' upon said inclined surfaces b<sup>2</sup> b<sup>2</sup>, and by the engagement of the locking-lugs m m with the locking-notches b' in the outer side of said slide-frame.

By a foot-board fitted to the chair as described, the entire foot-board as well as foot-rest is adjusted toward or from the chair-seat, and the foot-rest as well as the foot-board caused to approach and recede relatively to the chair-seat, as the case may be. By this construction, also, an exceedingly simple and effective movement or adjustment is obtained, while the foot-rest proper may be brought very close to the chair-seat, in order to accommodate persons having short limbs.

Having thus described my improvements, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the turning crank-shaft and frame in which it is mounted, of a crank jointed to said shaft, clutch mechanism controlled by said crank, and a spring acting on said crank to throw it into a normal position, substantially as described.

2. The combination, with a turning crank-shaft and frame in which said shaft is mounted, having locking-surfaces thereon, of a sleeve movable on said shaft, and having locking-surfaces to engage the locking-surfaces of said

frame, a spring acting on said sleeve, and a crank pivoted to said crank-shaft and connected with said sleeve to operate it, substantially as described.

- 5 3. The combination, with a chair-frame provided with locking-notches and inclined surfaces, of arms (carrying the foot-board of the chair) provided with lugs to engage said locking-notches, and with projections or shoulders

to ride upon said inclined surfaces, substantially as described.

In testimony whereof I have hereunto subscribed my name this 24th day of October, A. D. 1883.

ARTHUR W. BROWNE.

Witnesses:

CHAS. THRALL,  
G. GULOWSEN.