

(No Model.)

2 Sheets—Sheet 1.

S. HAYWARD.

CHAIR.

No. 374,251.

Patented Dec. 6, 1887.

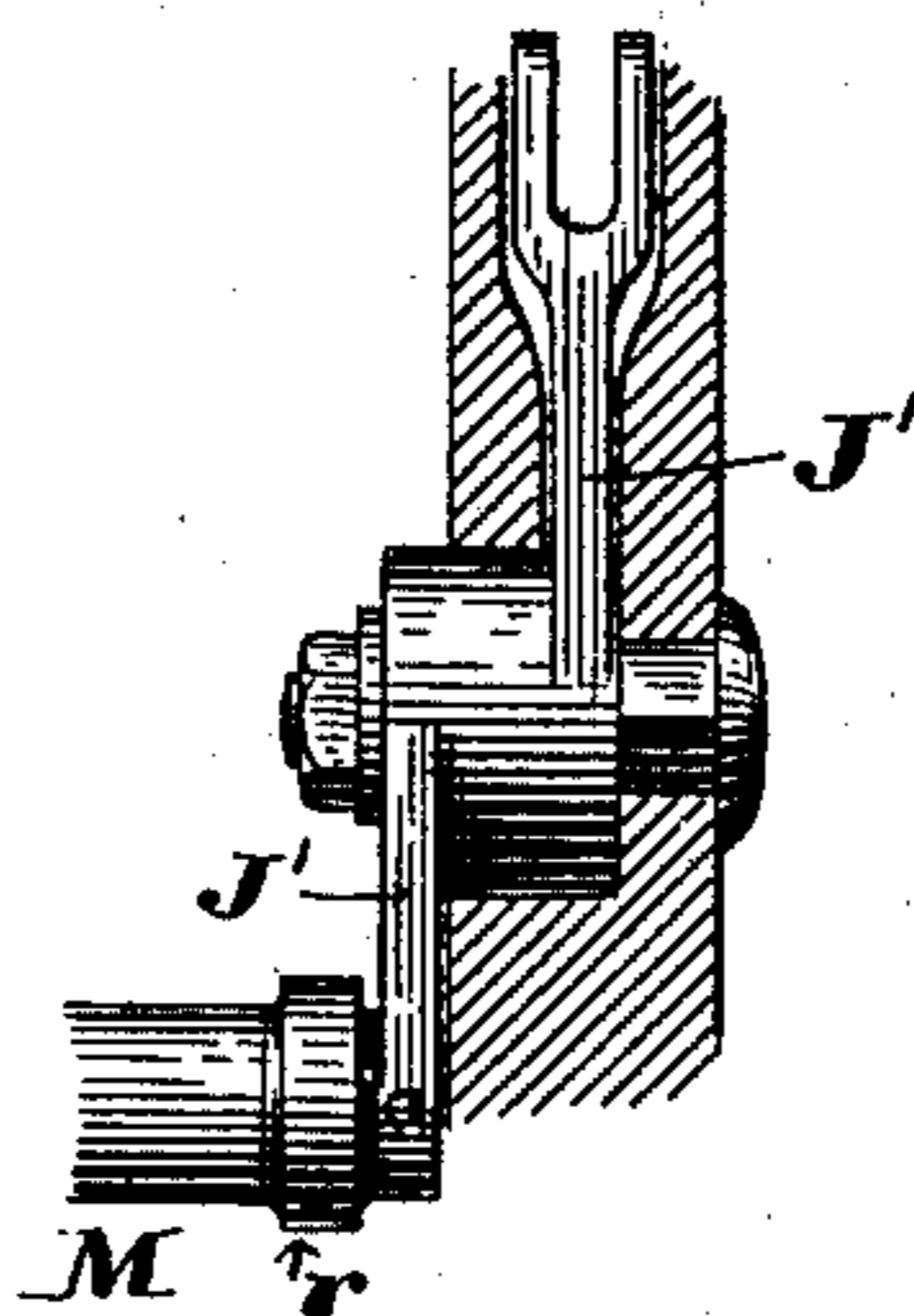
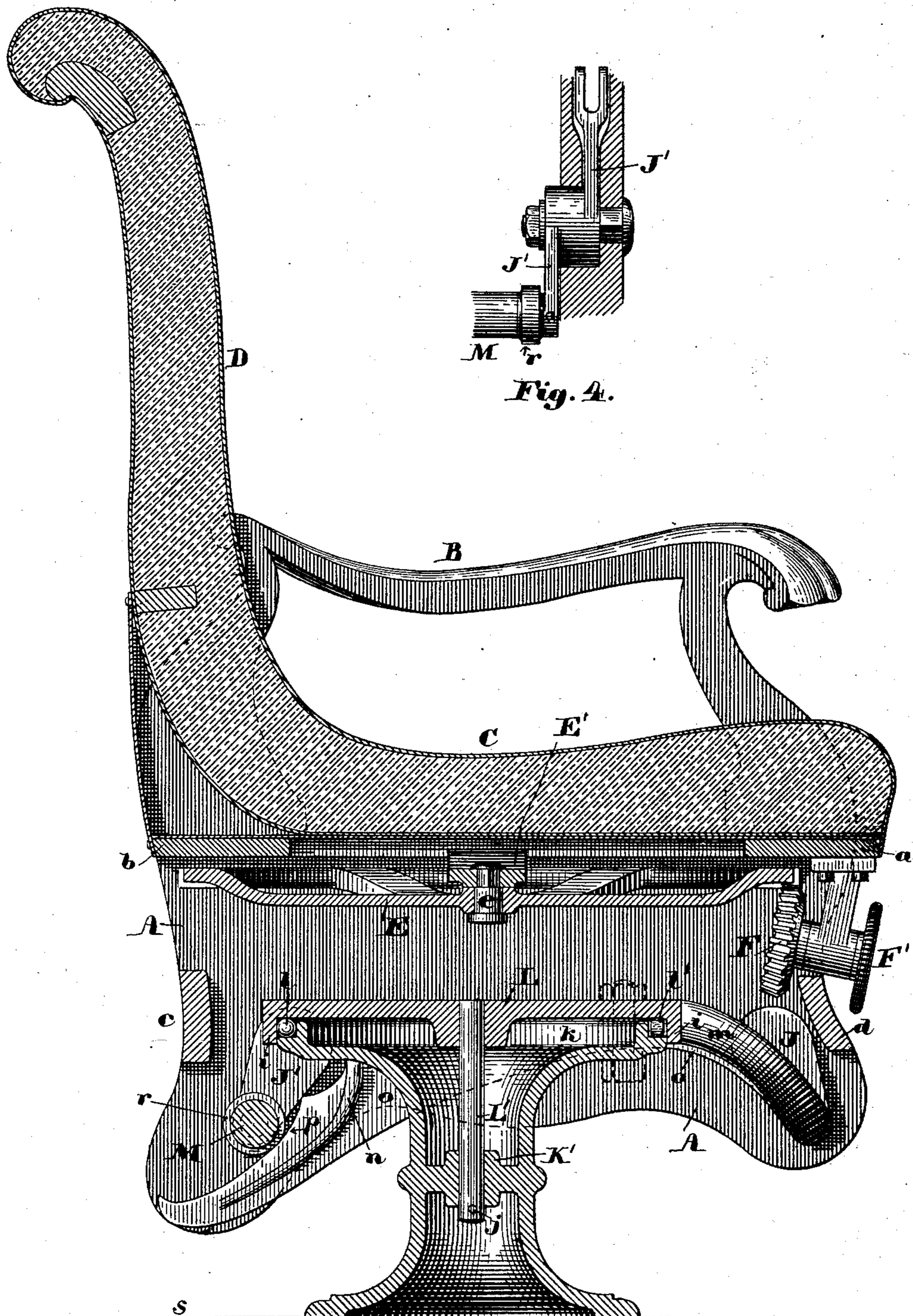


Fig. 4.

Fig. 1.

Witnesses:

Walter E. Lombard.
William H. Barry

Inventor:

Samuel Hayward,
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(No Model.)

2 Sheets—Sheet 2.

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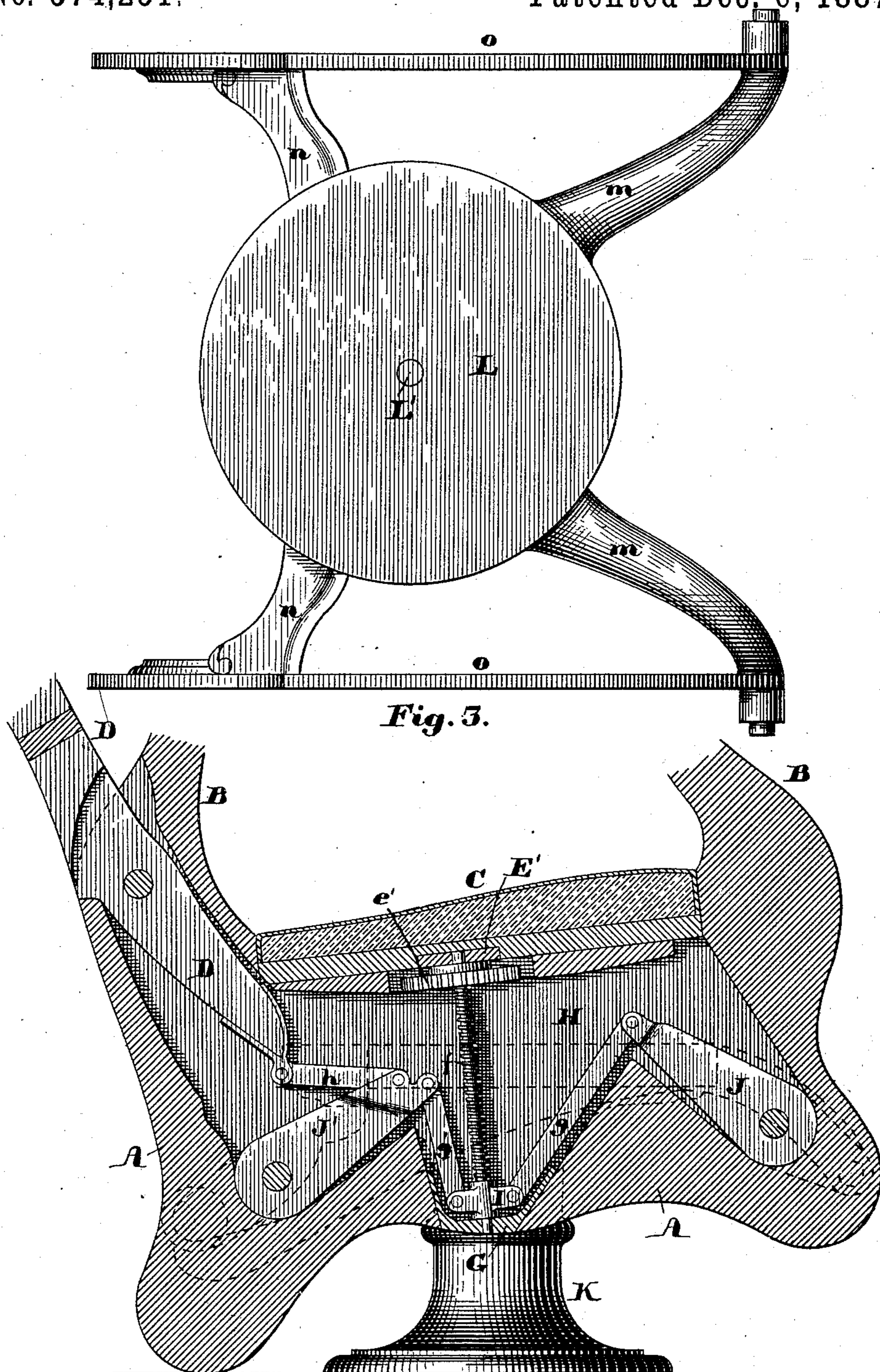


Fig. 3.

Fig. 2.

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UNITED STATES PATENT OFFICE.

SAMUEL HAYWARD, OF BOSTON, MASSACHUSETTS.

CHAIR.

SPECIFICATION forming part of Letters Patent No. 374,251, dated December 6, 1887.

Application filed August 27, 1887. Serial No. 248,039. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL HAYWARD, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Chairs, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to that class of chairs which have provision for adjusting the inclination of the back and the height of the seat, and is an improvement upon the invention described in Letters Patent No. 363,389, granted to me May 24, 1887; and it consists in certain novel features of construction, which will be readily understood by reference to the description of the drawings, and to the claims to be hereinafter given, and in which my invention is clearly pointed out.

Figure 1 of the drawings is a vertical section of a chair embodying my invention, the cutting-plane being equidistant from the side arms and parallel, or nearly so, thereto, with the parts in position to maintain the seat at its highest elevation and the back in its most nearly upright position. Fig. 2 is a partial section of the same, the cutting-plane being through the center of one of the side frames and parallel, or nearly so, to the plane of section of Fig. 1. Fig. 3 is a plan of the turntable, by means of which the chair is supported upon a central column, about which it may be revolved; and Fig. 4 is a detail illustrating the manner of mounting the rear vibratory levers.

In the drawings, A A are the side frames, connected together by the tie-girts *a*, *b*, *c*, and *d*, and provided with the arms B.

C is the seat, and D the back.

Beneath the seat C is the gear-wheel E, mounted upon a pendent stud, *e*, set in the metal bar E', secured at each end to one of the side frames, A, said gear-wheel having teeth upon the under side of its rim with which the teeth of the pinion F engage to impart motion to said wheel, said pinion being operated by the hand-wheel F', mounted upon the same shaft. The gear-wheel E is also provided with teeth upon its periphery, which engage with and impart motion to the pinions *e'*, secured upon the screws *f f*, mounted in bearings in

the tie-bar E' and in the castings G, fitted in the extreme lower portion of the slot H, formed in the side frames, A, in a vertical or nearly vertical position, and having fitted thereon the nuts I, each provided with projecting ears upon opposite sides thereof, to which are pivoted the links *g* and *g'*, which in turn are pivoted by their opposite ends to the upper ends of the levers J and J', the lever J' having also pivoted to its upper end one end of the link *h*, the opposite end of which is pivoted to the lower end of one of the side bars of the back-frame D, all as shown in Fig. 2, and substantially as shown and described in the before-cited Letters Patent.

In the chair shown and described in said prior patent the levers J and J' extended to the floor and served as the supports for the chair and its load. In my present invention the levers J and J' extend below their pivotal connection to the side frames, A, but not sufficiently far to rest upon the floor.

K is a central pedestal or column having a flange-like base to rest upon the floor, and a flaring upper end, upon which rests the turntable or platform L, provided with the downwardly-projecting annular lip *i*, to inclose the upper end of said pedestal, said turn-table being secured in position thereon against accidental displacement by the spindle L', firmly secured in the hub of said turn-table and extending through a hub, K', cast in the center of the pedestal K, in which it is free to revolve, but is prevented from moving endwise therein by a pin, *j*, passed through the said spindle below said hub K', or by any other well-known means. Preferably, I provide the upper end of the pedestal K with the upwardly-projecting lip or rib *k*, the outer diameter of which bears such a relation to the inner diameter of the lip *i* that when said turn-table is placed upon the column or pedestal K an annular pocket is formed between them, in which I place a series of revolving anti-friction supports, *l* or *l'*, upon which the turn-table rests, and which serve to materially reduce the friction; but said supports may be dispensed with, in order to reduce the expense, without affecting the principles of my invention.

The turn-table L is provided with four projecting arms, *m m* and *n n*, each arm *m* being connected to an arm *n* by a plate, *o*, which extends to the rearward of its junction with the arm *n*, said rearward-projecting portion of the plate *o* having formed upon its upper edge the cam-surface *p*, inclined as shown in Fig. 1, said turn-table, arms, and plates being all cast in one piece and of the form shown in Figs. 1 and 3. The arms *m m* extend beyond the plates *o* in the form of trunnions or journals, by which said casting is pivoted to the lower ends of the levers J. (See Figs. 1 and 3.)

The lower ends of the levers J' are connected together by the stay-rod M, which extends across the rear of the chair or from the lever J' upon one side to the corresponding lever upon the other side, and has mounted thereon two anti-friction trucks, *r*, in close proximity to the inner sides of said levers J', which are arranged to rest upon and move up and down along the cam-surfaces *p* as the nuts I are moved up or down on the screws *f f* by the rotation of the gear-wheel E, thereby causing the chair-seat to be raised or lowered at the same time that the back is moved about its pivots, the back part of the seat moving a greater distance vertically than the front part. By this arrangement the chair may be revolved about the axis of the turn-table without interfering with the adjustment of the back to a greater or less inclination and the seat to a greater or less elevation. If, however, it is desired to dispense with the swiveling of the chair and at the same time preserve the ability to adjust the back and seat without the objectionable feature of having the legs moving to and fro upon the carpet, the turn-table L and pedestal K may be firmly secured together by a bolt, as shown in dotted lines on Fig. 1; or they may be cast in one piece, if preferred.

The rear portions of the side frames, A, are made of such a depth that when the back is adjusted to its greatest inclination said rear portions of the side frames will touch or nearly touch the floor at *s*, thereby broadening the base-bearing of the chair and rendering it less liable to be capsized if the pedestal is not secured to the floor.

While I have shown and described anti-friction trucks carried by the rear levers, J', and resting upon and movable along the cam-surfaces P as preferable, it is obvious that instead of the trucks non-revoluble projections from the sides of said levers might be used with a fair degree of success and without affecting the principles of my invention.

In another application of mine of even date herewith, Serial No. 248,038, I have shown and described a table or platform and a central supporting pedestal constructed substantially the same as shown and described in this application; but in said other application the platform was pivoted at its front side directly to the side frames of the chair, and as the screws were revolved the rear edge of the

seat was raised or lowered without changing the height of the front edge thereof, while in this application the front side of the platform is pivoted to the lever-arms of pivoted vibratory levers in such a manner that when the screws are revolved the whole seat is raised or lowered, but a greater movement being given to the rear edge of the seat than is given to the front edge of the same.

The anti-friction supports for the platform may be balls, as shown at *l*, or rolls, as shown at *l'*, as may be preferred.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a chair, of a pivoted back, four independently-pivoted levers, a pair of revoluble screws, each carrying a non-revoluble nut, suitable links connecting the upper ends of said levers with said nuts and with the pivoted back, a table or platform pivoted at its front side to the lower arms of the front pair of levers and provided with rearwardly-projecting plates having inclined cam-surfaces, and a pair of laterally-projecting bearing-surfaces carried by the lower arms of the rear pair of levers, and arranged and adapted to rest upon and move along said cam-surfaces as said screws are revolved to raise or lower the chair.

2. The combination, in a chair, of a pivoted back, four independently-pivoted levers, a pair of revoluble screws, a pair of non-revoluble nuts fitted to work on said screws, suitable links connecting the upper ends of said levers, said nuts, and the pivoted back, a table or platform pivoted at its front side to the lower arms of the front pair of levers, and provided with rearwardly-projecting plates having inclined cam-surfaces, a pair of laterally-projecting bearing-surfaces carried by the lower arms of the rear pair of levers and arranged and adapted to rest upon and to be moved along said cam-surfaces as the chair is raised or lowered, and a central pedestal fitted to said table or platform by a swivel-connection.

3. The combination, in a chair, of a pivoted back, four independently-pivoted levers, a pair of revoluble screws, a pair of non-revolving nuts fitted to said screws, suitable links connecting the upper ends of said levers, the pivoted back, and said non-revolving nuts, a table or platform pivoted at its front side to the lower arms of the front pair of levers, and provided with rearwardly-projecting plates having inclined cam-surfaces, a pair of projecting bearing-surfaces mounted upon the lower arms of the rear pair of levers and arranged to rest upon and move along said cam-surfaces as the chair is raised or lowered, a central pedestal fitted to a circular bearing in the under side of said table or platform, and a series of anti-friction supports interposed between said table and pedestal, substantially as described.

4. The combination, in a chair, of a pivoted back, four independently-pivoted levers,

a pair of revoluble screws, a pair of pinions secured upon said screws, a spur-gear wheel for revolving said pinions and screws, a pinion engaging said gear-wheel and provided with
5 means for revolving the same, a pair of non-revolving nuts fitted to said screws, suitable links connecting the upper ends of said levers to the said nuts and the pivoted back, a table or platform pivoted at its front side to the
10 lower arms of the front pair of levers, and provided with rearwardly-projecting plates having inclined cam-surfaces, and a pair of projecting bearing-surfaces mounted upon the

lower arms of the rear pair of levers, and arranged and adapted to rest upon and move 15 along said cam-surfaces as the chair is raised or lowered.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 23d day of August, 20 A. D. 1887.

SAMUEL HAYWARD.

Witnesses:

N. C. LOMBARD,

WALTER E. LOMBARD.