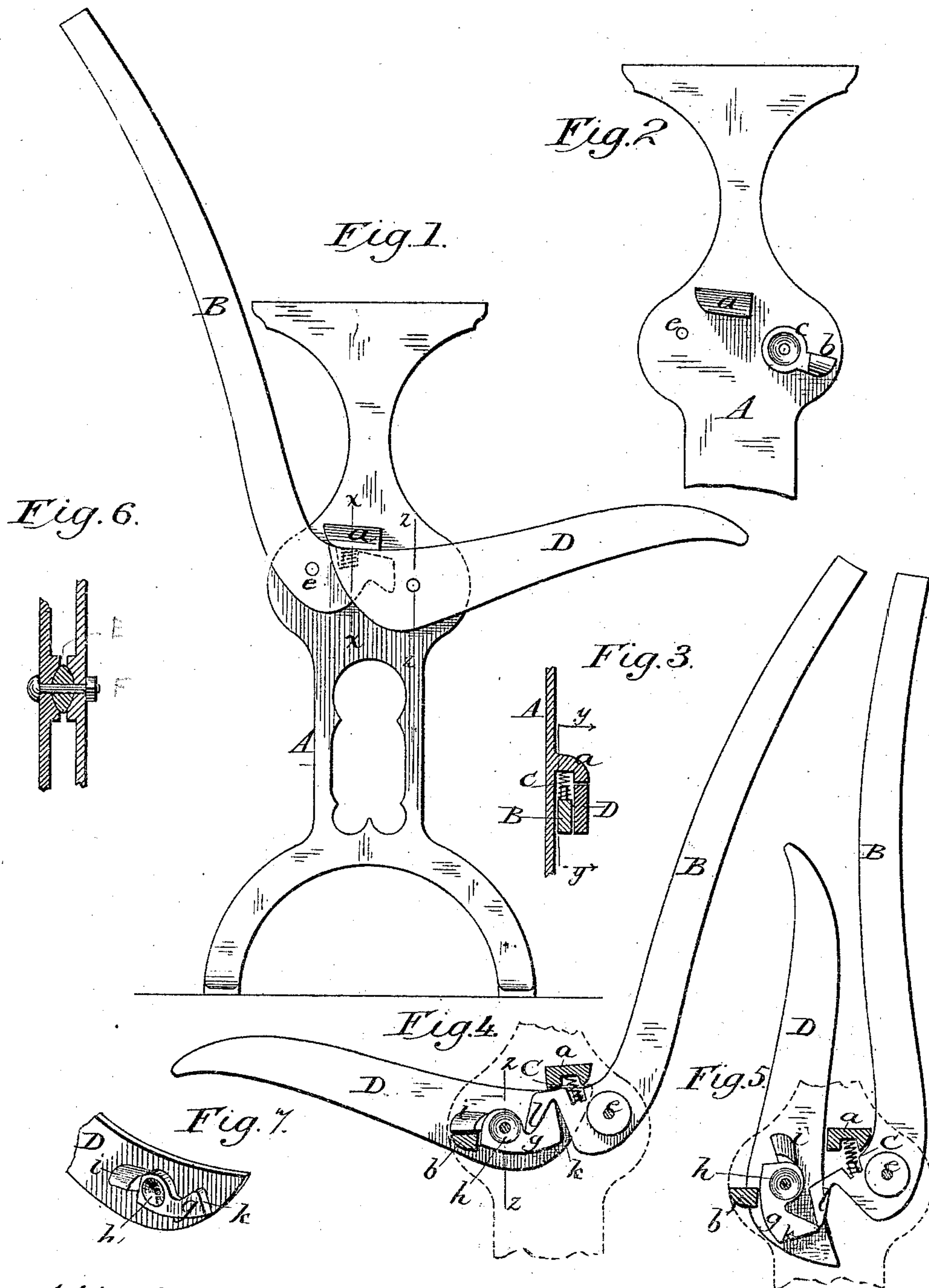


(No Model.)

E. G. DURANT.
OPERA CHAIR.

No. 271,320.

Patented Jan. 30, 1883.



Attest.

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UNITED STATES PATENT OFFICE.

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OPERA-CHAIR.

SPECIFICATION forming part of Letters Patent No. 271,320, dated January 30, 1883.

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To all whom it may concern:

Be it known that I, EDWARD G. DURANT, of Racine, in the county of Racine and State of Wisconsin, have invented certain Improvements in Opera-Chairs, of which the following is a specification.

My invention relates to that class of chairs wherein the seat and back, arranged to co-operate, are pivoted and adapted to swing to a vertical position when not in use.

The objects of the invention are to simplify and cheapen the construction, give the chair great strength, and render the parts noiseless when in action; also, to adapt the chairs to be placed in straight or curved rows, as may be required, without interfering with their operation.

With these ends in view the invention consists in applying to the pivoted back a spring which tends to maintain the back in a vertical position; also, in applying said spring in such manner that it serves to prevent noise as the back is thrown backward, and to maintain a constant connection between the seat and back.

The invention also consists in arranging the seat to engage and co-operate with the lower portion of the back, as hereinafter explained in detail.

The invention further consists in the peculiar spheroidal bearing for the seat, and in minor details.

Referring to the accompanying drawings, Figure 1 is a side elevation of one side of a seat-frame constructed on my plan. Fig. 2 is a face view of the standard, with the seat and back arms removed. Fig. 3 is a cross-section on the line *xx*, Fig. 1. Fig. 4 is a section on the line *yy* of Fig. 3, looking away from the standard, the position of which is indicated by dotted lines, the parts being in position for use. Fig. 5 is a similar view with the seat and back in an upright position. Fig. 6 is a vertical section on the line *zz*, Figs. 1 and 4. Fig. 7 is a perspective view of one of the seat-sustaining arms.

Referring to the drawings, A represents an upright standard, of which there will be, as usual, one to support each side of the chair, a single standard to be arranged, as usual, be-

tween two seats to support the adjacent edges of both. This standard is provided on its inner face with a lug or stop, *a*, and with a lug or bearing, *c*, the latter recessed or made concave in its outer surface and provided with a forwardly-extending lug, *b*, to serve as a stop and support to the seat.

B represents the back-supporting arm, pivoted near its lower end, at *e*, to the standard A in such manner that it may swing from an upright to an inclined position, being held, when in the latter position, by means of the lug *a*, with the under side of which it comes in contact, as represented in Figs. 1 and 4. The lower end of the back B, in advance of the pivot, is recessed in the upper side to receive a vertical spiral spring, C, the upper end of which latter is seated in a recess in the under side of the lug *a*, as plainly represented in Figs. 3, 4, and 5. The spring thus applied, urging the lower end of the back downward, serves to maintain the back normally in a vertical position, permitting it, however, to swing backward to an inclined position by the application of a moderate pressure to its upper end. The spring also serves the additional purpose of preventing noise as the back is thrown against the lug *a* by its backward movement. While it is preferred to apply the spring in the manner shown, it is obvious that it may be applied in any other suitable manner, provided it acts upon the back B to maintain the same normally in an upright position.

D represents the seat-supporting arm, pivoted at the point *c* to the standard, and limited in its downward motion by the lug *a*, beneath which the rear end of the arm engages, as shown in Figs. 1, 3, and 4. The seat-arm, as plainly represented in Fig. 7, is provided on its inner face with a raised portion, *g*, having at the center a concave recess, *h*. Between the arm and the standard there is inserted a double-convex or spheroidal washer, E, the opposite faces of which fit into the recess *h* of the arm and the recess *c* of the standard, respectively, as plainly represented in Fig. 6. The bolt, pin, or equivalent fastening device, F, is inserted through the standard, the washer, and the arm, as represented in Fig. 6, and serves to bind them closely together. The

double-convex washer serves as a universal bearing between the standard and arm, permitting the arm to swing laterally to a limited extent in relation to the standard without clamping or binding. This feature permits the seats to be arranged, as is frequently required, in curved or irregular rows, each standard supporting the adjacent sides of two seats. Good results may be obtained by substituting for the loose double-convex washer a hemispheric protuberance upon the standard to extend into the arm, or vice versa, the parts in such case being constructed in such manner as to permit the arm to move a limited extent around or upon the hemispheric bearing.

I am aware that a seat has been hitherto constructed wherein the standard was provided with a hemispheric protuberance seated in a corresponding recess in said arm, the parts being, however, fitted in such manner that the flat face of the arm rested squarely and closely against the flat face of the standard, whereby the lateral play or movement of the arm was prevented. The projection upon the inner face of the seat-arm has its forward end fashioned into a lug, *i*, arranged to bear, when the seat is in use, upon the lug *g* of the standard, as represented in Fig. 1 and in dotted lines in Fig. 4. Upon reference to Fig. 1, it will be seen that the weight of the seat-arm is borne mainly by the lug *b*, that its downward motion is at the same time limited by means of the lug *a*, and that in this manner the joint is almost wholly relieved of weight and strain. The projection *g* of the seat-arm has its rear end fashioned into a shoulder, *k*, adapted to engage beneath the corresponding shoulder, *l*, on the lower end of the seat-arm, as clearly represented in Figs. 4 and 7. When the seat is in an operative position the lug upon the seat-arm bears beneath the forward end of the back and holds the latter in an inclined position, the spring at such time being compressed. The back is released as the rear end of the spring-arm swings downward, and the spring permitted to throw the back into an upright position. It will be noticed that the spring serves to keep the back and seat-arm pressed constantly together, thereby causing them to move easily and noiselessly and preventing their parts from falling.

The present invention is restricted to those matters and things hereinafter specifically claimed, and as to all other features which may be described or shown, but not claimed, the right is reserved to make the same the subject-matter of a separate patent.

I am aware that a hinged seat has been pro-

vided with supplemental collars designed to act upon a pivoted back and turn the same to an upright position as the seat was elevated, the arrangement requiring the operator to bend downward in order to reach and operate the edge of the seat, and this I do not claim. It will be observed that in my chair the movement of the seat is effected by the movement of the back. This permits the attendant, without stooping or bending downward, to fold the seat by simply moving the back of the chair.

Having thus described my invention, what I claim is—

1. The combination of the rigid standard A, and the lug *a* thereon, the back-arm B, pivoted to the said standard and extending below its pivot, and the spiral spring seated between the lug upon the standard and the lower end of the arm, substantially as described and shown, whereby the back is caused to assume an upright position.

2. The combination of the supporting-standard, the pivoted back, the pivoted seat engaging at its rear end with the back, and the spring arranged to act upon the lower end of the back, and tending to maintain the same in an upright position.

3. In an opera-chair, the combination of the standard, the pivoted seat-supporting arm connected with the standard by a spheroidal joint, space being left between the arm and standard, as described, to permit a lateral movement of the arm upon its bearing.

4. In an opera-chair, the combination of the standard, a pivoted seat, and a pivoted back arranged, substantially as described, to engage directly upon the seat and turn the latter to an upright position, whereby the folding of the seat may be effected by moving the upper edge of the back.

5. In combination with the standard having the stud *a*, the pivoted seat-arm and pivoted back-arm, having their ends extended past each other, and both arranged to bear beneath the stud *a* when in action, as shown, whereby the two arms are permitted to fold upward on opposite sides of the stud, as described and shown.

6. In combination with the standard having the lug *a* recessed in its under side, the pivoted seat-arm and pivoted back-arm provided with the interlocking portions *g* and *l*, and the spring C, seated within the lug and back-arm, as described and shown.

EDWARD G. DURANT.

Witnesses:

WM. C. FISH,

JNO. F. BICKEL.