2 Sheets—Sheet 1.

C. B. DEMAREST.

Opera-Chair.

No. 197,723. Patented Dec. 4, 1877.

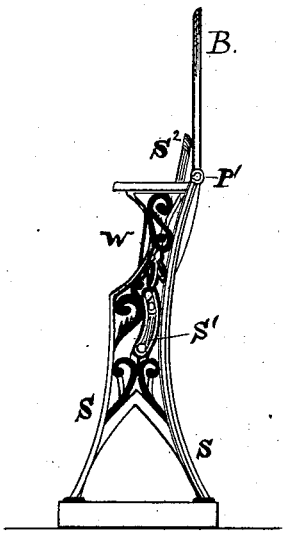

Fig. 2.

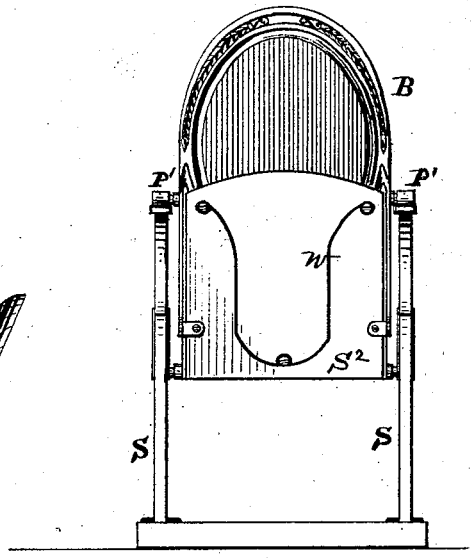

Fig. 3.

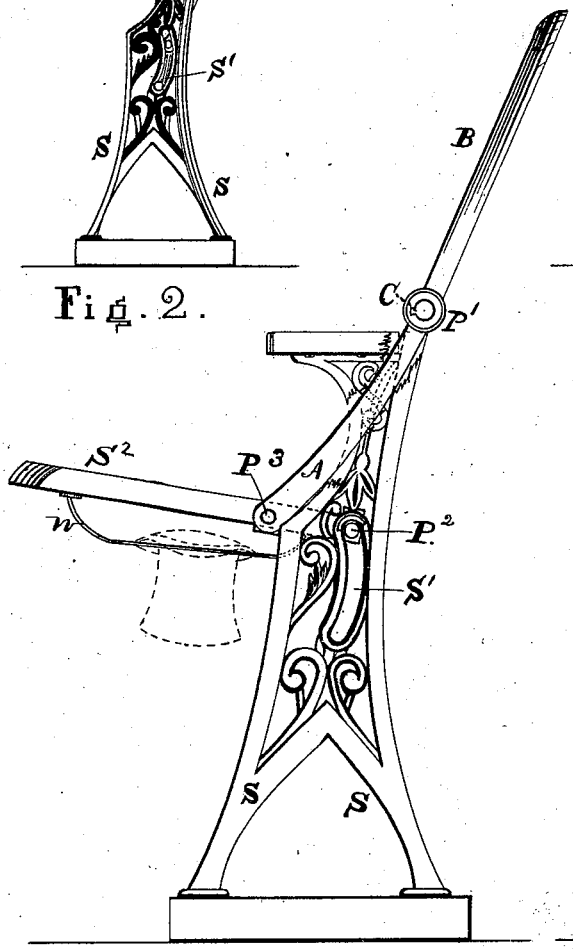

Fig. 1.

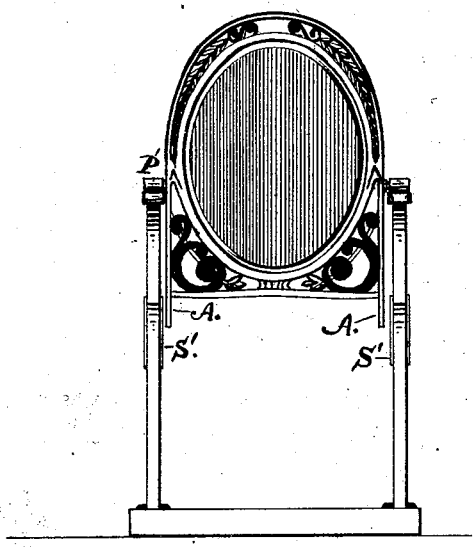

Fig. 4.

Witnesses:

Theodore R. Shear.

George H. Hammell.

Inventor:

Cornelius B. Demarest

2 Sheets—Sheet 2.

C. B. DEMAREST.

Opera-Chair.

No. 197,723. Patented Dec. 4, 1877.

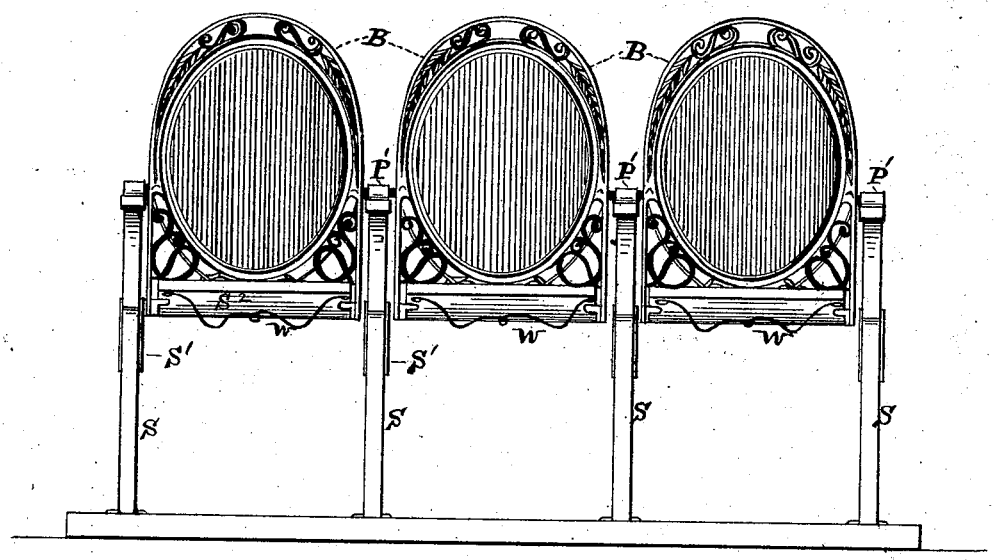

Fig. 5.

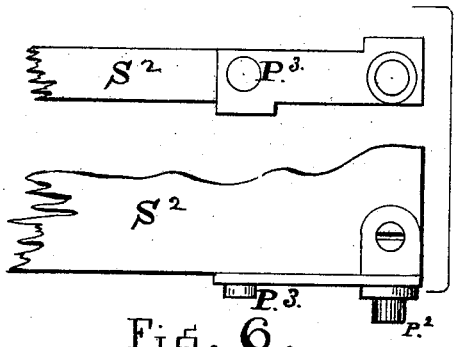

Fig. 6.

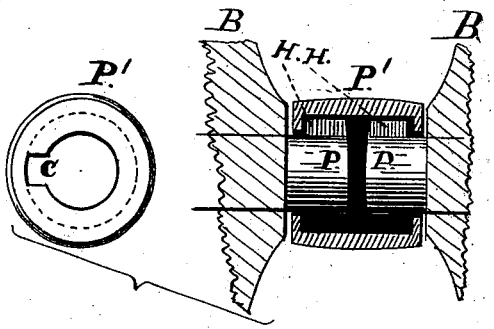

Fig. 7.

Witnesses:
Theodore R. Shear
George Hammell

Inventor:
Cornelius B. Demarest

UNITED STATES PATENT OFFICE.

CORNELIUS B. DEMAREST, OF BROOKLYN, E. D., NEW YORK.

IMPROVEMENT IN OPERA-CHAIRS.

Specification forming part of Letters Patent No. **197,723**, dated December 4, 1877; application filed April 12, 1877.

To all whom it may concern:

Be it known that I, CORNELIUS B. DEMAREST, of Brooklyn, E. D., New York, have invented a new and useful Improvement in Folding Chairs, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side view, showing the seat of the chair down and the back turned backward for use. Fig. 2 is a side view of the same when folded up. Fig. 3 is a front view of the seat folded up, showing a device for securing a hat or other article to the bottom of the seat. Fig. 4 is a front view of the chair with the seat removed. Fig. 5 is a front view of a series of these seats. Fig. 6 is a representation of the side and end views of the pins supporting the seat, showing how they are secured to the seat; and Fig. 7 is a sectional view, showing the pivots of two adjoining backs and their bearings.

The object of my invention is to produce a chair suitable for places where space is limited and valuable.

It relates to a folding chair in which both the seat and the back are moved to the several positions required for sitting purposes and for easy ingress and egress to and from seats placed in rows or series; and it consists in the several devices, arrangements, and combinations of parts for securing these ends hereinafter described and claimed.

In the drawings, B is a movable and pivoted back, the pivots P P of which are received and move in the bearings P^1 P^1 located at the top of the sides or standards S S. The back B is arranged to vibrate between the vertical position, required for easy egress and ingress, and the slightly-inclined position required for comfort in sitting. The pivots P P of each one of a series or row of seats are provided on the outer ends and upper sides with projections H H, which form engaging-hooks. The bearings P^1 P^1 on the standards S S have at the sides channels C C of a size to admit the projections H H when the seat B is turned down horizontally, for the purpose of inserting the pivots P P into their bearings P^1 P^1. Each bearing P^1 receives the pivots of the two adjoining sides of the adjoining seat-backs, and, in casting, is cored out within, so as to permit the projections H H to freely come on the upper side of the pivots when the backs are partly revolved from the horizontal to the vertical position. In this last-named position the backs B B of a series of seats, with their hooked pivots engaging a series of standards, S S, perform the functions of stay and tie-rods, and themselves hold the entire series together, as in Fig. 5, in one immovable structure without the aid of any additional fastening, except that of the standards, screwed or otherwise made fast to the floor.

This arrangement remedies a serious defect in some chairs, which, when arranged in series without tie-rods, have been known to slip their pivots out of the bearings, and thereby disarrange a whole row of chairs.

The hook H may be located at any part of the pivot other than the top, which will answer the purpose of holding the standards and series of seats together.

The standards S S are provided with the curved slots S^1 S^1, which are so located therein that when the standards are secured in proper position the slots will be nearly vertical, or with the tops of the slots a little back of a line drawn perpendicularly through the lower ends of the slots. In these slots S^1 S^1 the guide-pins P^2 P^2, on the sides of the seat S^2, at its rear edge take and slide as the seat is raised and lowered. The slots S^1 S^1 are at the bottom curved forward, and as the pins P^2 P^2 reach that part of the slots, the part of the seat below the pivots P^3 P^3 swings outward, and that part above them swings naturally into the hollow of the back, out of the way, as shown in Fig. 2. The seat S^2 is provided with the pivots P^3 P^3, which are located forward of the guide-pins P^2 P^2, on the sides of the seat, and rest and turn in bearings P^4 P^4 in the ends of the arms A A, which are rigid projections from the sides of the back B.

The operation of my invention is as follows: The seat being down, the instant it is lifted the pivots P^2 P^2 begin to move backward and downward in the slots S^1 S^1, drawing after them the arms A A and the seat S^2, the effect of which is to cause the back B to begin immediately to turn on its pivots P P, and to tend toward assuming a vertical position. Consequently the moment the sitter starts

rom and lifts his seat for his own convenience, he also causes the inclined back of his seat to move out of the way of a sitter occupying a similar seat exactly in rear of him. Thus, all the sitters in many series or rows of seats rising at the same time, an easy egress s made possible to all, and the same convenence of access is secured to those entering and seeking sittings in the rows of these seats, while after all are seated the comfort of sloping-backed seats may be enjoyed by all, and n a comparatively limited space.

The back is caused to assume a sloping position by reversing the motions previously described, since the seat and the back are so arranged and combined that the depression of the seat draws forward the bottom of the back and throws backward that part of the back above the pivots P P.

The standards being narrow and their arms short, they occupy little space, and the seat and back, being pivoted (not rigidly secured) thereto, hang in and swing freely between them, with little or no tendency to disturb the fastenings of the standards, the action being downward, chiefly, under all circumstances. Each standard between two seats and backs receives in the bearings and slots shown and described the pivot of the back and the sliding pin of the seat on each side of it.

The slots S^1 S^1 may be made straight instead of curved, as shown and described, without avoiding my invention, and so as to permit the desired movements with fair facility and good practical results, if properly located; but I prefer the curved slot, as shown.

The backs B B may be pivoted either above or below a line drawn transversely across their centers, and the lengths of the slots S^1 S^1 may be increased or diminished accordingly, so as to cause the back to be moved any desired distance and to and from any required slope.

I am aware that the pins on which folding seats of chairs are swung have been provided with heads for the purpose of locking one seat fast to the next seat, and also of assisting to prevent the standards from spreading apart, and also that the rigid backs and standards of chairs provided with pivoted seats have been provided with dovetail joints, so as to permit the parts to be slid together, and thus hold them all in a fixed position; but my invention differs from these methods by employing a movable and pivoted back as the connecting-link between the standards, the pivots of which engage the standards, at or near their tops, by a detent device, which, together with the assistance furnished by screwing the bottoms of the standards to the floor, enable me to hold a series of chairs together without using the pivoted seat for that purpose, which can only perform that duty imperfectly, since it engages the standards low down, and requires some fastening between the tops of the standards to make the series sufficiently rigid.

I claim as my invention—

1. The standards S S, provided with the curved slots S^1 S^1, and the seat S^2, provided with the pivots P^1 P^1 and P^2 P^2, the latter sliding pivots taking in the slots S^1 S^1, in combination with a movable chair-back attached to and operated by the seat, as shown and described.

2. The combination of the movable back B, provided with pivots, located near a line drawn centrally and transversely across it, which are held in axial bearings in the standards S S, with the folding seat S^2, pivoted on each side, forward of the rear end, to rigid extensions from the back B, and provided on its rear end with the sliding pins P^2 P^2, which take and slide in slots in the standards S S.

3. The combination of the movable back B, provided with pivots, located near a line drawn centrally and transversely across it, which are held in axial bearings in the standards S S, with the folding seat S^2, pivoted on each side, forward of the rear end, to rigid extensions from the back B, and provided on its rear end with the sliding pins P^2 P^2, which take and slide in the curved slots S^1 S^1.

4. The folding seat S^2, pivoted to extensions of the movable back B, and provided with sliding pins P^2 P^2, arranged to move in the slots S^1 S^1, the back B, pivoted axially in axial bearings in the standards S S, and the standards S S, provided with the slots S^1 S^1, each substantially as shown and described, and all in combination.

5. The pivoted back B, pivoted folding seat S^2, and standards S S, provided with the slots S^1 S^1, in combination.

6. The movable back B, provided with pivots on each side, nearly on a line drawn transversely through its center, which take in bearings provided in the standards on each side, and are provided with the detents H H, to hold the back and standards together.

7. The pivot P P of a movable back of a folding chair, provided with the detent H, which engages with the inside of a collar, constituting a bearing for the pivot, as shown and described.

8. The pivot P of the folding-chair back B, provided with the detent H, in combination with the bearing P^1, in the manner and for the purposes shown.

9. A series of seats provided with movable backs, pivoted in the standards, which, by their pivots, acting as detents on each side, engage in bearings in a series of standards on each side of each, (except those at the ends,) and hold the series together as one structure, the backs performing the functions of tie-rods throughout the series, all substantially as shown and described.

CORNELIUS B. DEMAREST.

Witnesses:
GEORGE HAMMEL,
THEODORE R. SHEAR.