(No Model.) 2 Sheets—Sheet 1.

H. L. ANDREWS.

OPERA CHAIR.

No. 303,606. Patented Aug. 19, 1884.

Fig. 2.

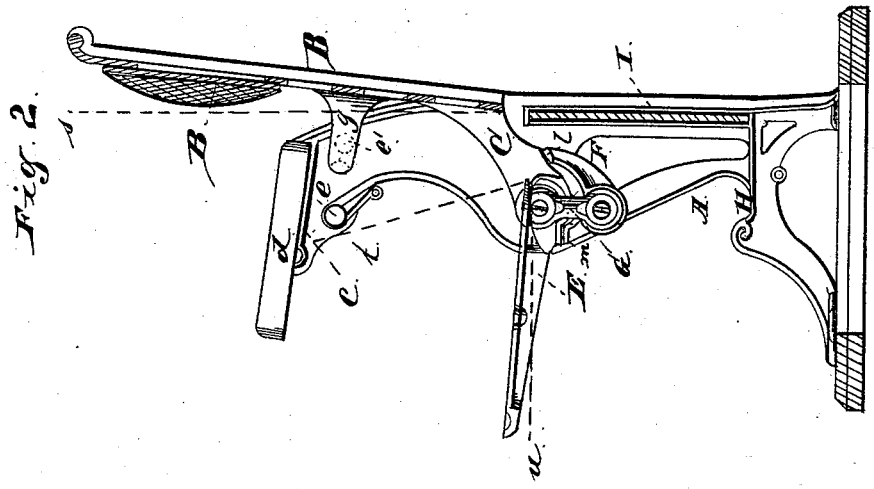
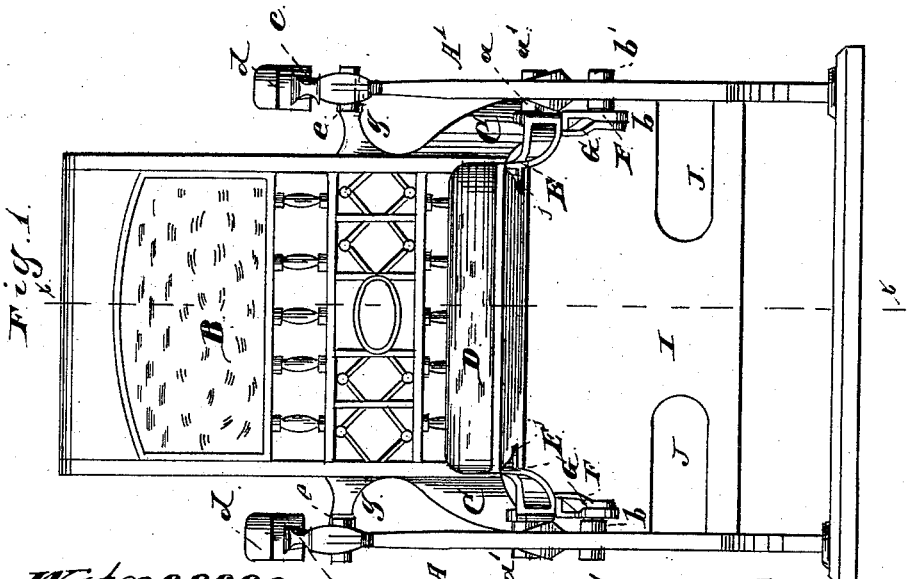


Fig. 1.



Witnesses:
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A. H. Adams.

Inventor:
Herbert L. Andrews

(No Model.) 2 Sheets—Sheet 2.

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Fig. 13.

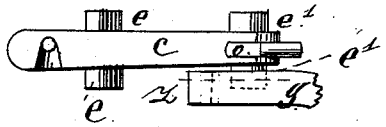


Fig. 14.

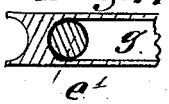


Fig. 5.

Fig. 3.

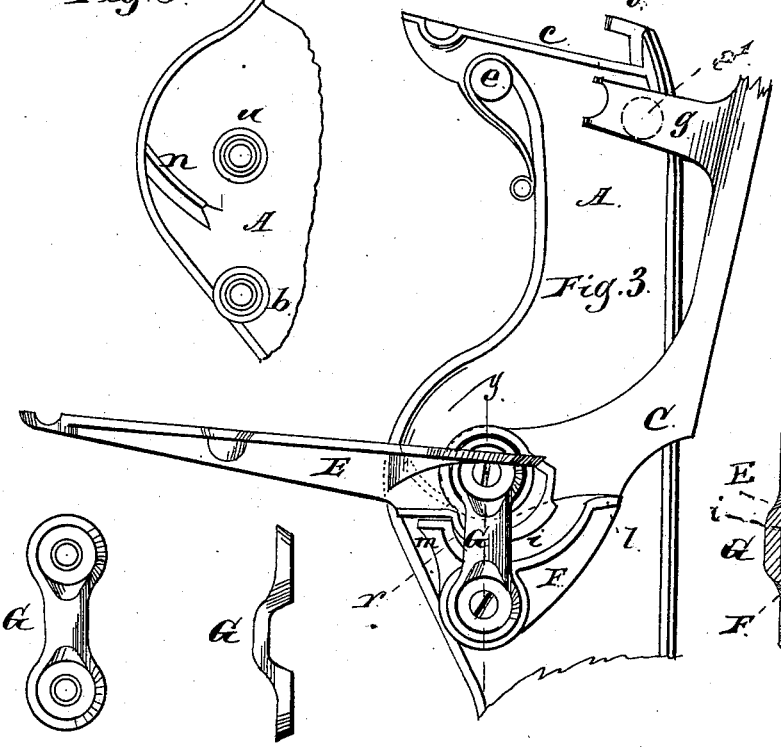


Fig. 4.

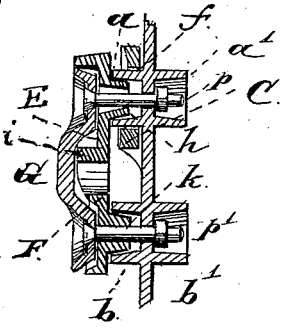


Fig. 11.

Fig. 12.

Fig. 6.

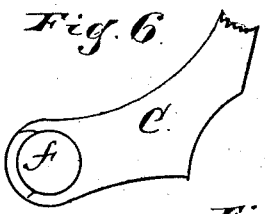


Fig. 7.

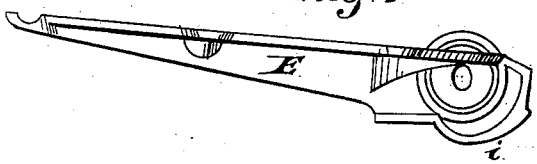


Fig. 9.

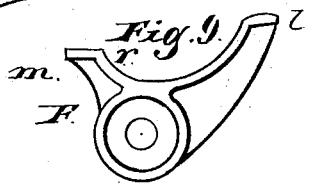
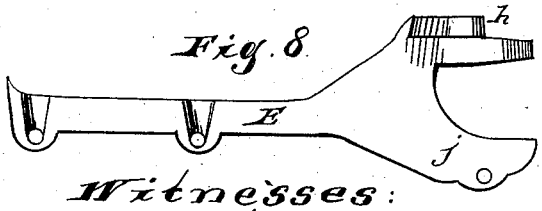
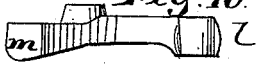


Fig. 8.



F k Fig. 10.



Witnesses:
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Inventor:
Herbert L. Andrews

UNITED STATES PATENT OFFICE.

HERBERT L. ANDREWS, OF CHICAGO, ILLINOIS.

OPERA-CHAIR.

SPECIFICATION forming part of Letters Patent No. 303,606, dated August 19, 1884.

Application filed September 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, HERBERT L. ANDREWS, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented new and useful Improvements in Opera-Chairs, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation. Fig. 2 is a vertical section at line *x* of Fig 1. Fig. 3 is a detail, being an inside view of a portion of one standard and the seat-arm attached thereto. Fig. 4 is a detail, being a section at line *y* of Fig. 3. Fig. 5 is a detail, being an inside view of a portion of one seat-arm. Fig. 6 is a detail showing one of the arms or extension at the lower end of the tilting back. Fig. 7 is an inside view of the seat-arm. Fig. 8 is a top view of the seat-arm. Fig. 9 is a side elevation of the lever through which the back is operated. Fig. 10 is a top view of the same lever. Figs. 11 and 12 are a front and a side view of the part they represent. Fig. 13 is a top view of the standard and a projection from the tilting back. Fig. 14 is a section at line *z* of Fig. 13.

My invention relates to opera-chairs which have tilting backs for convenience of ingress and egress. For the convenience of the occupant the backs of such chairs stand at an angle when in actual use. Heretofore it has been common to pivot the backs of such chairs at a point near the vertical center; and hence, when the top of the back is brought forward the lower end must be moved back, and the distance which the upper end of the back moves forward is only about one-half as much as it would be if the back were pivoted at or near the lower end. Heretofore such tilting backs have been operated by raising the seats. The leading objects of my invention are to construct opera-chairs having tilting backs so that the pivotal point of the back will be at or near the lower end, so that the back can be tilted forward either by lifting the seat or by downward pressure upon the front part of the seat, and so that the seat-arm and the lower end of the tilting back will be pivoted at the same point, which objects I accomplish as hereinafter fully described, and those things which I claim as my invention will be fully set forth in the claims.

In the drawings, A A′ represent two standards of an opera-chair. They can most conveniently be made of cast-iron.

a a′ are hollow trunnions, there being, as shown, one on each side of each standard.

b b′ are other hollow trunnions, located, as shown, just below the trunnions *a a′*.

c is the top of the standard, adapted to receive a piece of wood, *d*, which serves the purpose of an arm-rest.

e e′ are stops near the upper end of the standard.

B is a tilting back.

C are two arms projecting downward and forward from the tilting back proper. They can be made as part of the back or separate therefrom, being properly secured to the back. The end of the arm C is provided with a hole, *f*, to receive one of the trunnions *a*.

g are two short arms projecting forward from the back—one on each side. These arms are so arranged that their outer ends come in contact with one of the stops, *e*, and there is a projection on each arm, arranged so that it can come in contact with the other stop, *e′*.

D is a seat supported upon two arms, E. Each seat-arm E is provided with a hollow trunnion, *h*, adapted to enter one of the trunnions *a*. The rear end of the seat-arm is cam-shaped, as shown at *i*. (See Fig. 7.)

j is the rear end of that part of the seat-arm to which the seat is secured.

F is a lever, the form of which is shown in Fig. 9. As shown, it is provided with a trunnion, *k*, adapted to enter one of the hollow trunnions, *b*. This lever has two arms, *l m*, so arranged that the arm *l* can engage with the under side of the arm C at the lower end of the back, while the other arm, *m*, can engage with the under side of the seat-arm E, as shown in Fig. 3.

G is an iron strap.

m, Fig. 5, is a stop on the inside of the standard, with which a suitable stop on the side arm can engage.

o is a hook or projection on the top of the standard, which hook enters the rear end of the arm-rest *d*. The standards, the frame for the tilting back, and the seat-arms are preferably made of cast-iron, as usual. The back and seat may be suitably upholstered. Upon the front of each standard, near the bottom and below the seat, I have provided an umbrella or cane-holder or support, H, which is a desirable feature.

I is a protector, the ends of which are inserted, as shown, in slots in the standards. It may be made of wood or other suitable material. The protector is provided with two openings, J—one upon each side—into which openings the feet of the occupant of the seat next behind may partially be inserted; but these openings are intended to be of such size that the feet will not be liable to come in contact with an umbrella when placed upon the holders or supports H. If the feet of the occupant of another seat could readily come in contact with an umbrella when placed upon the supports H, they would be of little value in practical use.

The parts are to be put together by first placing the lower ends of the arms C of the back over the trunnions *a* on the inside of the two standards. The seat-arms E are then to be brought into position, the trunnions thereon entering the trunnions *a*, as shown in Fig. 4. The levers F are then to be placed upon trunnions *b*. The strap G is to be brought to place, all the said parts then being secured by two bolts, *p p'*, Fig. 4.

The operation is as follows: In Fig. 2 the tilting back and seat-arm are supposed to be in the position which they occupy when the seat is down, and the back is thrown back as far as it can go. Now, if the seat be raised, the cam *i* upon the rear end of each seat-arm E will come in contact with the inside *r* of the arms *m* of the levers F, causing the levers to turn upon their fulcrums, thereby depressing the arm *m* and elevating the arms *l*, which, being in contact with the arms C upon the lower end of the back and at a point some distance in the rear of the pivoted point of the back, will cause the back to turn up on its pivot, throwing the upper end forward until it comes into a vertical position, (indicated by the dotted line *s*, Fig. 2,) at which time the seat will have been brought into the position indicated by the dotted line *t*. If the occupant of the seat desires to cause the back to tilt forward without rising from his seat, he can cause it to do so by leaning forward, bringing the greater portion of his weight upon the forward part of the seat, which will depress the seat-arms a little, bringing them into the position shown by the dotted line *u*, and that portion of the seat-arm which is in contact with the arms *m* of the levers F will cause them to rotate somewhat upon their fulcrums, lifting the arms *l* and bringing the back into a vertical position, as before. It is desirable to bring the back into a vertical position for the convenience of those who are entering or going out from the seats next behind. Before the seats have been occupied it is convenient to do this by raising the seat, and if the seat has been occupied it is convenient to provide for doing this without requiring the occupant to rise from his seat, which I accomplish as last above described. The arm *g* has a projection at its forward end, which engages with one of the stops, *e'*, when the back is thrown back, furnishing a secondary support for the back, and the forward movement of the back is limited by the contact of the end of the arm *g* with the other stop, *e*. Each side of the tilting back and one seat-arm are pivoted upon a common center, which renders it easy to adjust the seats upon a circle.

I have only shown one seat in the drawings; but it will be seen that the standards are provided with trunnions *a b* upon both sides, and each standard is adapted to receive a seat-arm and a back upon both sides.

When a seat and back are placed upon each side of a single standard, the parts are to be connected as before described, it only being necessary to use longer bolts *p p'* than are shown in the drawings.

In manufacturing I find it advisable to round off or bevel the ends of the trunnions *a a'* a little both forward and back of the vertical center, to facilitate the placing of the seats on a circle, and also to make the openings in these trunnions large to permit a little movement of the trunnion *h* therein.

I believe that I am the first to operate a tilting back by depressing the forward ends of the seat-arms as well as by raising them, and therefore I do not limit myself to the exact devices by means of which this result is accomplished.

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. In an opera-chair, a tilting back having at or near its lower end arms C, and hinged to the standards by means of such arms, in combination with the standards, the seat-arms E, hinged upon the same center as the back, and means, substantially as described, for adjusting the inclination of the back and supporting the same in position, substantially as described.

2. In combination with the standards, a tilting back provided with arms C, pivoted at or near their lower ends upon the standards, the seat-arms E, each provided with a cam, *i*, and lever F, substantially as described.

3. In a chair, a tilting back pivoted at or near its lower end to the standards, the standards provided with arm-rests secured to their upper portions, in combination with a hinged

seat having its supporting-arms hinged upon the same centers as the back, and means, substantially as described, for supporting the back in position, as set forth.

4. In combination with the standards provided with stops *e e'*, a tilting back provided with arms *g*, and arms C, pivoted at or near their lower ends upon the standards, the seat-arms E, hinged upon the same centers as the back, and means, substantially as described, for supporting the back in position, as set forth.

HERBERT L. ANDREWS.

Witnesses:
B. A. PRICE,
O. W. BOND.