A. L. LEVIN.

OPERA CHAIR.

APPLICATION FILED OCT. 5, 1915.

1,198,461.

Patented Sept. 19, 1916.

3 SHEETS—SHEET 1.

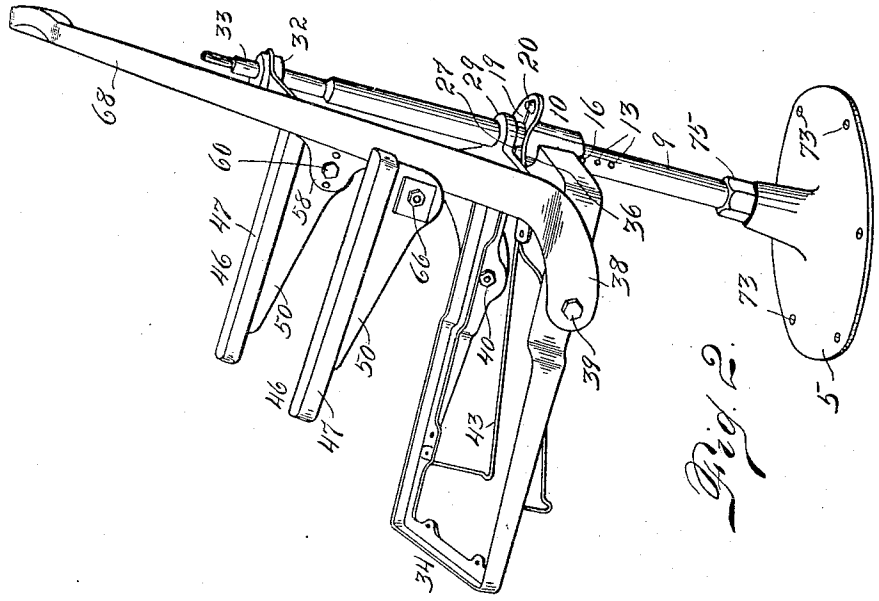


Fig. 2.

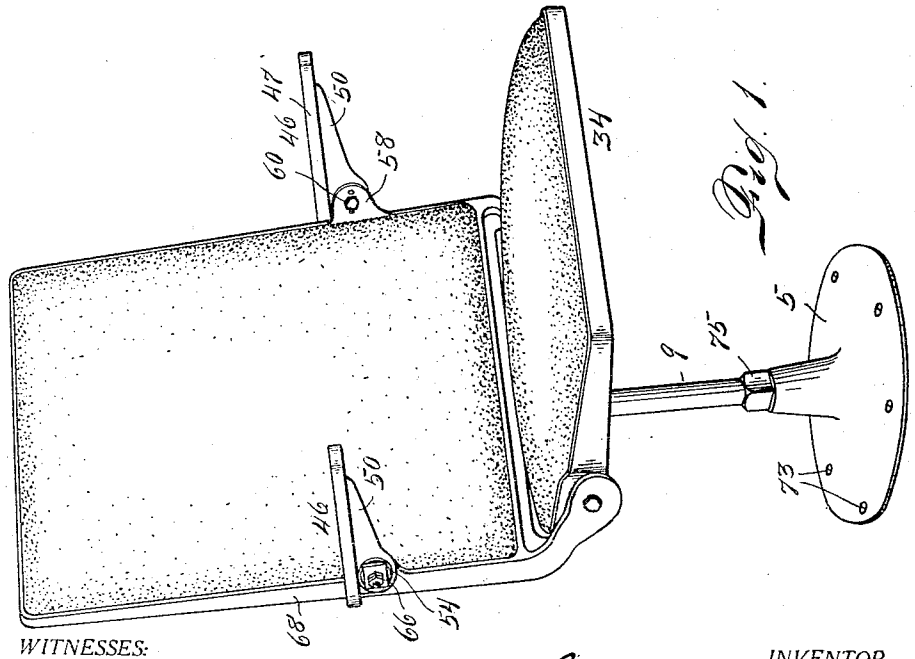


Fig. 1.

WITNESSES:

Otto E. Hoddick.

F. A. Van Rossem.

INVENTOR.

Adolph L. Levin

BY

A. J. Boyle

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

A. L. LEVIN.

OPERA CHAIR.

APPLICATION FILED OCT. 5, 1915.

1,198,461.

Patented Sept. 19, 1916.

3 SHEETS—SHEET 2.

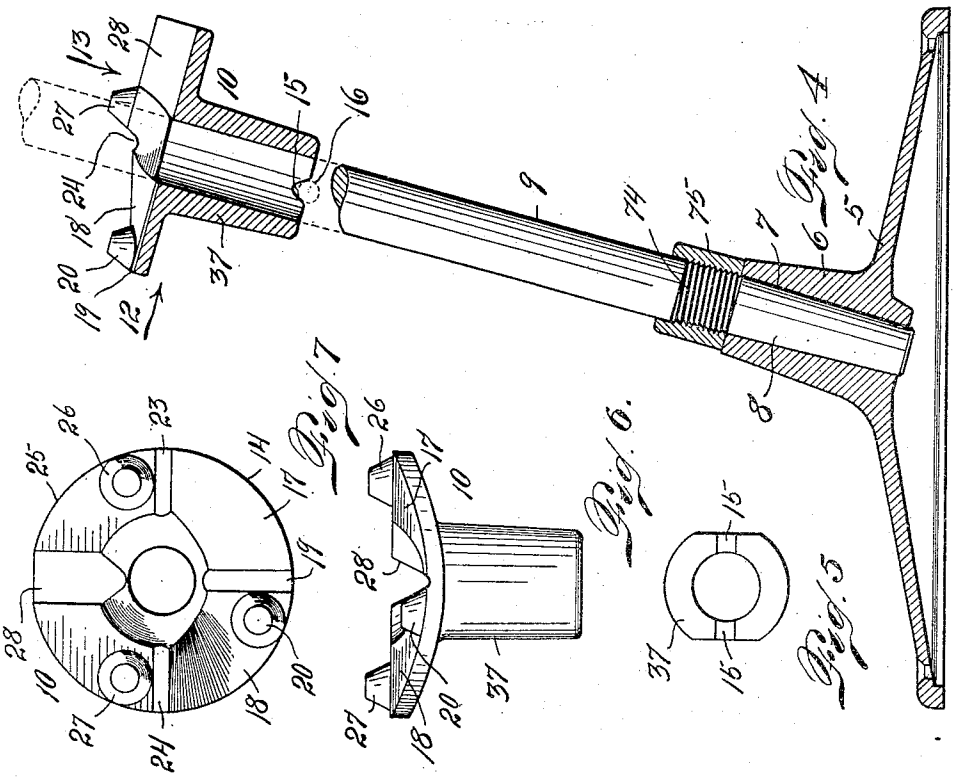


Fig. 4

Fig. 7

Fig. 6.

Fig. 5

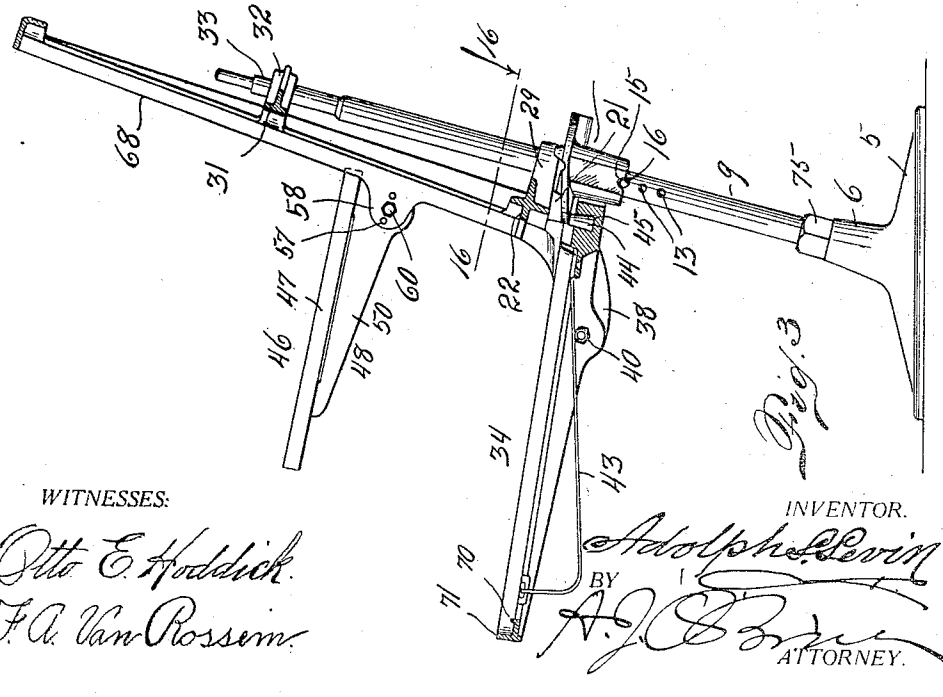


Fig. 3

WITNESSES:

Otto E. Hoddick.

F. A. Van Rossem.

INVENTOR.

Adolph L. Levin

BY

A. J. Boyle

ATTORNEY.

A. L. LEVIN.

OPERA CHAIR.

APPLICATION FILED OCT. 5, 1915.

1,198,461.

Patented Sept. 19, 1916.

3 SHEETS—SHEET 3.

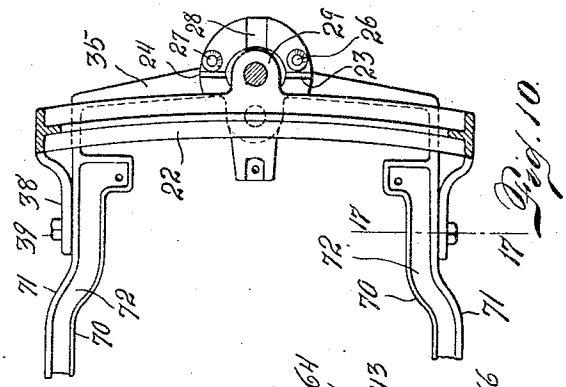


Fig. 10.

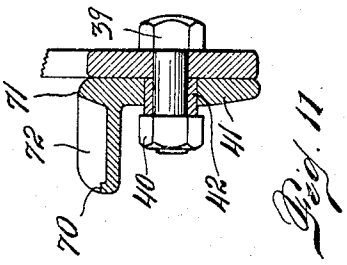


Fig. 11.

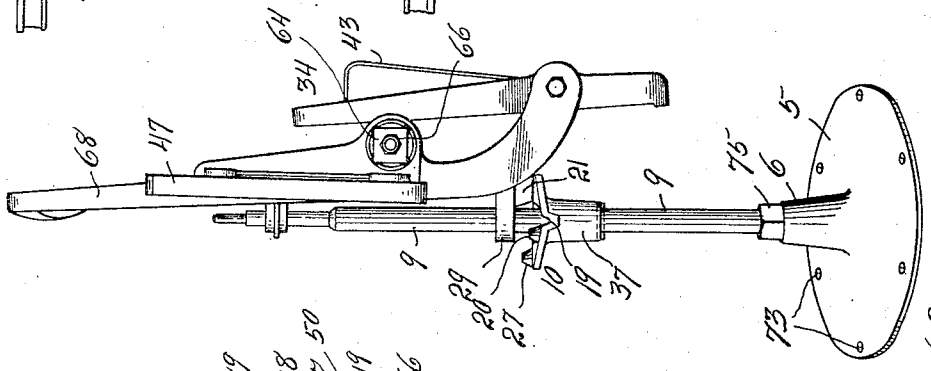


Fig. 9.

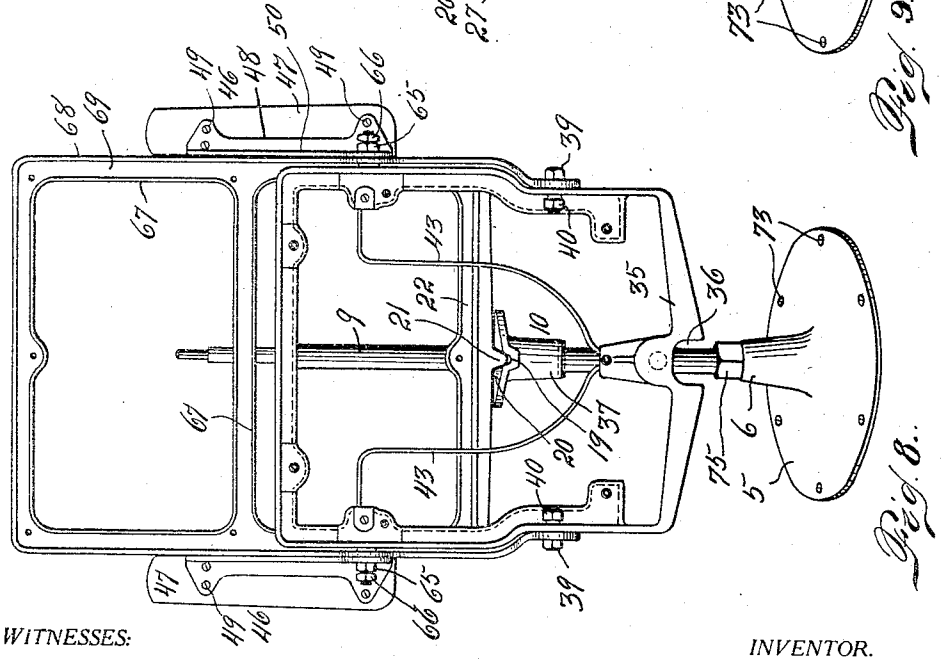


Fig. 8.

WITNESSES:

Otto E. Haddick.

F. A. Van Rossem.

INVENTOR.

Adolph L. Levin

BY

A. J. Boyle

ATTORNEY.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ADOLPH L. LEVIN, OF DENVER, COLORADO.

OPERA-CHAIR.

1,198,461. Specification of Letters Patent. Patented Sept. 19, 1916.

Application filed October 5, 1915. Serial No. 54,134.

To all whom it may concern:

Be it known that I, ADOLPH L. LEVIN, a citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Opera-Chairs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in opera chairs, my object being to provide a chair of this character which shall be exceedingly well suited for use in opera houses, auditoriums and in all other places where a good article of this class is required.

My present invention must be considered an improvement on the construction disclosed in my prior Patents Nos. 656,583 and 880,314, dated August 21, 1900, and February 25, 1908, respectively. The general construction and operation of the chair is disclosed in the aforesaid patents and my present improvement relates more particularly to details of construction, rather than to any broad or general principle involved in the operation of the article. The advantages of a chair of this character are quite fully set forth in the aforesaid patents and therefore will be but briefly referred to herein.

The chair includes a leaning standard upon which the chair back is rotatably mounted, being supported by a hub which is vertically adjustable and rotatably reversible thereon. This hub is provided with a flange having two oppositely arranged advancing-spiral members and a third plain member which is arranged at right angles to the axis of the standard. The spiral members as their names indicate serve to raise the chair back and the seat carried thereby as partial rotary movement is imparted thereto when the seat is folded, for the purpose of forming auxiliary aisles for use in case of fire or whenever any occasion may arise for the utilization of such aisles. The flange of the hub is further equipped with retaining grooves adapted to engage a depending V-shaped lug carried by the chair back, which lug also engages the spiral member of the flange utilized during the turning movement of the back. In practice only one of these spiral members will generally be utilized and consequently a stop is arranged to prevent the rotary movement of the chair back in the direction of one of these spirals, in order that uniformity of adjustment for auxiliary aisle making purposes may be secured. This flange is also equipped with stops adjacent each of two retaining grooves located at the upper extremities of the spirals. Furthermore the plain portion of the flange of the hub is centrally provided with a relatively deep socket or jaw adapted to receive the depending V-shaped lug carried by the chair back. The hub is flattened or reduced on two opposite sides to enter an opening of counterpart shape formed in the counterbalancing bar of the chair seat, for locking the back and seat structure against turning when the seat is in the lowered position.

Other features of novelty will be disclosed as the specification proceeds.

Having briefly outlined my present improvements, as well as the functions they are intended to subserve, I will proceed to describe the same, reference being made to the accompanying drawing, in which is illustrated an embodiment thereof.

In this drawing, Figure 1 is a perspective view of a complete chair equipped with my improvements. Fig. 2 is a perspective view of my improved chair with the upholstering removed, the view being taken from the side. Fig. 3 is a partial central vertical section taken through the chair back and seat, the other parts being shown in elevation. Fig. 4 is a sectional view of the base plate and hub, the latter being in alinement with the post which is in position in the socket of the base. Fig. 5 is an underneath view of the lower extremity of the hub. Fig. 6 is an elevation of the hub or a view looking in the direction of arrow 12, Fig. 4. Fig. 7 is a top plan view of the hub or a view looking in the direction of arrow 13, Fig. 4. Fig. 8 is a front view of the chair showing the seat in the folded position. Fig. 9 is a side elevation of the same. Fig. 10 is a section taken through the standard and chair back approximately on the line 16—16, Fig. 3, looking downwardly, the seat being broken away. Fig. 11 is a sectional view illustrating the pivotal connection of the seat with the chair back, the section being taken on the line 17—17, Fig. 10, the parts being shown on a larger scale.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate the base or floor plate which is provided with an upwardly projecting boss 6 in which is formed a socket 7 tapering downwardly and adapted to receive the counterpart extremity 8 of the leaning post or standard 9.

Mounted on the standard at a suitable elevation above the floor plate is a hub 10 having a top flange 14 and bottom V-shaped recesses 15 adapted to engage a pin 16 passed through any one of several perforations 13 formed in the standard, whereby the hub is vertically adjustable on the standard to vary the height of the seat as circumstances may require or dictate. The recesses 15 being V-shaped and the engaging pin 16 cylindrical, there is a wedging action when the hub is in engagement with the pin, the latter engaging the opposite sides of the recess at two points only.

The flange 14 of the hub consists of two advancing-spiral members 17 and 18 which are arranged on opposite sides of a retaining groove 19, the flange being equipped with a frusto conical stop 20 located at the lower extremity of the spiral member 18 and adapted to engage a lug 21 formed on the lower cross rail 22 of the chair back, when the said back is in its normal position for use, assuming that the hub is in position to permit rotary adjustment of the chair back for auxiliary-aisle forming purposes which is the position illustrated in Figs. 2, 3 and 8. In the upper extremities of the spiral members 17 and 18, are located radial retaining grooves 23 and 24 adapted to receive the lug 21 for temporarily retaining the chair back and seat in the position after they have been adjusted by giving them a quarter rotation from the normal position. When the flange of the hub is constructed as shown in the drawing, the groove 24 cannot be utilized.

The plain portion 25 of the flange is provided with two frusto conical stops 26 and 27 which are located adjacent the retaining grooves 23 and 24 and adapted to positively stop the rotary movement of the chair back on the post farther than is necessary in order to allow the V-shaped lug 21 to engage the grooves 23 and 24. Extending downwardly from the center of the plain member 25 of the flange is a relatively deep V-shaped socket 28 adapted to receive the lug 21 of the chair back when it is desired to lock the chair back against turning on its standard. The opposite walls of this socket may be termed jaws which embrace the lug 21 on opposite sides and serve to efficiently perform the aforesaid function. When this socket is utilized, the hub is given a half rotation from the position shown in the drawing, whereby the plain portion 25 of the flange will be located in front and the spiral members 17 and 18 in the rear.

In addition to the depending V-shaped lug 21, the lower rail 22 of the chair back is also equipped with a rearwardly extending projection 29 perforated to receive the standard and freely slidable thereon. The chair back is also equipped about midway of its height with a cross rail 31 which is also equipped with a rearwardly extending projection 32 perforated to receive the reduced upper portion 33 of the standard upon which the said projection moves freely both longitudinally and rotatably as required during the rotary movement of the chair back as heretofore explained.

The chair seat 34 is provided with a relatively heavy counterbalancing bar or rail 35 which occupies a rearward position when the seat is down or arranged for use. This bar 35 is centrally provided with an opening or socket 36 adapted to engage the part 37 of the hub below the flange of the latter, when the chair back and seat are in the front position or the position for use. This portion 37 of the hub is slightly reduced or flattened on opposite sides, to permit it to enter this opening when the back and seat are in the front position, but at no other time. It is evident that the hub will be in position to engage or enter the opening 36, regardless of the position of the hub, that is to say, whether it occupies the one or the other of its two positions, since in reversing the position of the hub it is given exactly a half turn whereby the same grooves 15 are in engagement with the supporting pin 16. The chair seat is pivotally connected with the lower forwardly curved projections 38 of the side rails of the chair back by means of pivot bolts 39 and nuts 40, the bolts passing through registering openings formed in the parts 38 and the side rails 41 of the chair seat, the openings in the latter being enlarged to receive bushing sleeves 42 which project inwardly beyond the side rails of the seat whereby they prevent the nuts 40 from being screwed against the rails which might produce an undesirable binding result. The seat is preferably further provided with a hat support composed of wires 43 whose extremities are connected with the counterbalancing rail of the seat at one extremity and with the respective side rails of the seat at their opposite extremities.

The counterbalancing bar or rail 35 of the seat is further equipped with a cushion 44 which may be composed of any suitable material and is located in a socket 45 which increases somewhat in size as it extends inwardly, in order to allow the cushion 44 to expand within its socket due to pressure by virtue of the engagement of its upper or

exposed extremity with the under surface of the flange of the hub when the chair seat is in use. This cushion serves to prevent the counterbalancing rail of the seat from coming into actual contact with the flange of the hub. This is advantageous since it is desirable that the lowering of the seat from the folded to its normal position should be as nearly noiseless as possible.

Each arm rest 46 as illustrated in the drawing, is composed of a wood member 47 and a metal member having a depending flange 50. The chair back has forward projections 58 which are perforated to receive pivot bolts 60 which also pass through registering openings formed in the metal members 50 of the arm rest. Fastening nuts 65 and 66 are applied to the bolt 60, whereby the arm rests are held securely in place.

The frame of the chair back is provided with a longitudinal flange 67 formed on its side and cross rail members and coöperating with the outer flange 68 to form a channel or shallow depression 69, to make room for the inturned edges of the covering of the upholstering, since the wood frame portion of the upholstering will engage the flange 67 whereby a space is left for the inturned edges of the covering. The frame of the chair seat is similarly equipped, the flange in this case being designated by the numeral 70 and coöperating with the outer flange 71 to form a shallow channel 72. Hence these longitudinal flanges 67 and 70 are located on the inner edge of the angle-shaped seat frame and back frame of the chair, and serve a threefold purpose: First, as a rest for the upholstered frame panels on the seat and back. Second, to form a longitudinal channel between the said flange and the outer flange of the said frames. Third, to reinforce the said frames and make them much stronger.

From the foregoing description the use and operation of my improved opera chair will be readily understood. The base or floor plate 5 is rotatably adjustable on the floor and when properly adjusted may be secured in place by means of suitable fastening devices as screws 73. The lower portion of the standard 9 is threaded as shown at 74 to receive a nut 75 which forms a shoulder on the standard which engages the upper extremity of the boss 6 of the floor plate. This nut may be utilized for lifting the standard when for any reason it may be necessary or desirable so to do. For instance, by properly turning this nut, the lower tapering extremity 8 of the standard may be raised from its socket, thus loosening the standard and permitting its easy removal.

Assuming that the parts of the chair are assembled, if it is desired that the chair back and seat when the latter is folded, shall be adjustable for auxiliary aisle forming purposes, the hub 10 will be placed in the position shown in Fig. 4 and the other views of the drawing, whereby the retaining groove 19 is forwardly located and the deep groove or socket 28 located in the rear. However should it be desired to lock the chair back and seat against rotation, the hub may be placed in what may be termed the reversed position or so that the deep groove or socket 28 will be in front and adapted to receive the V-shaped lug 21 of the chair back to prevent rotary adjustment. As the folding and lowering of the seat and arms will be readily understood from the description heretofore given, further detail description of the operation of the chair is believed unnecessary.

The so-called spiral members 17 and 18 of the flange 14 of the hub, each has the shape approximately of a small portion or section of a part which winds and at the same time rises or advances like a screw thread around a cylindrical shank or stem which in the present construction is the standard 9.

The employment of the bushing sleeves 42 in connection with the pivot bolts 39 and nuts 40 whereby the seat is foldably connected with the back of the chair, in addition to the function heretofore stated, namely, the preventing of the clamping of the side rails of the seat against the parts 38 of the chair back, perform the additional function of preventing any actual contact between the seat frame and the nut which might have a tendency to turn the latter, which of course is not desirable.

Attention is called to the fact that in order to reverse the flanged hub 10 or change its position to allow the lug 21 to occupy the shallow groove 19 or the deep groove 28 as may be desired, it is only necessary to lift the folded frame composed of the back and seat members with one hand far enough to permit the lifting of the hub with the other hand sufficiently to disengage the recesses 15 of the hub from the cylindrical pin 16, after which the hub may be given the necessary half turn for the aforesaid purpose, in which event the folded frame is allowed to move downwardly into its proper relative position. Of course, this act will never be performed except under the direction of the management of the house where the chairs are located. It will be understood that the folded frame is freely movable longitudinally of the standard for the aforesaid purpose.

Having thus described my invention, what I claim is,—

1. In an opera chair the combination with a leaning standard, of a chair frame rotatably connected with the said standard and

having a depending lug, and a flange mounted on the standard and forming a support for the chair frame, the said flange having a shallow radial groove on one side and a deep groove or socket on the opposite side, adapted to receive said lug, the flange being rotatably reversible to bring either groove into the front position for use.

2. The combination with a leaning standard and a folding chair frame provided with a depending lug, the chair frame being rotatably connected to the standard, of a flange mounted on the standard and having a deep radial groove and a shallow radial groove oppositely disposed thereon, spiral members arranged on opposite sides of the shallow groove, the flange also having shallow radial grooves at the upper extremities of the spiral members and stops adjacent each of the shallow grooves adapted to engage the depending lug of the chair frame when the lug engages the said grooves.

3. The combination with a leaning standard and a folding chair frame provided with a depending lug, the chair frame being rotatably connected to the standard, of a flange mounted on the standard and having a deep radial groove and a shallow radial groove oppositely disposed thereon, spiral members arranged on opposite sides of the shallow groove, the flange also having shallow radial grooves at the upper extremities of the spiral members and stops adjacent each of the shallow grooves adapted to engage the depending lug of the chair frame when the lug engages the said grooves, the said stops being of frusto conical shape and the lug of the chair frame having its opposite side walls shaped to fit said stops.

4. In a chair of the class described the combination with a standard having a number of perforations lengthwise disposed thereon, a folding chair frame rotatably connected with the standard, a flanged hub forming a rest for the folded frame, the said hub having recesses in its lower edge, and a pin adapted to enter any one of the perforations of the standard and engaging the recesses of the hub, the pin being readily removable to permit the vertical adjustment of the hub.

5. In a chair of the class described the combination with a standard provided with a flanged hub, and a back rotatably connected with the standard, of a seat foldably connected with the back and having a rear rail or bar provided with an opening, the said hub being reduced or flattened on two opposite sides to allow it to enter the said opening in the rail or bar of the seat as the latter is lowered to the position for use.

6. In a chair of the class described the combination with a standard provided with a flanged hub, and a back rotatably connected with the standard and provided with a depending lug adapted to engage the flange of the hub, of a seat foldably connected with the back and having a rear rail or bar provided with an opening, the flange of the hub having a shallow radial groove on one side and a deep radial groove diametrically located, the said groove being adapted to engage the said lug of the chair back, the hub being flattened or reduced on opposite sides of a plane passing through said grooves and cutting the axis of the hub.

In testimony whereof I affix my signature in presence of two witnesses.

ADOLPH L. LEVIN.

Witnesses:
GRACE HUSTON,
A. EBERT O'BRIEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."