No. 714,547. Patented Nov. 25, 1902.

J. A. WILKINSON.

OPERA CHAIR.

(Application filed June 8, 1901.)

(No Model.)

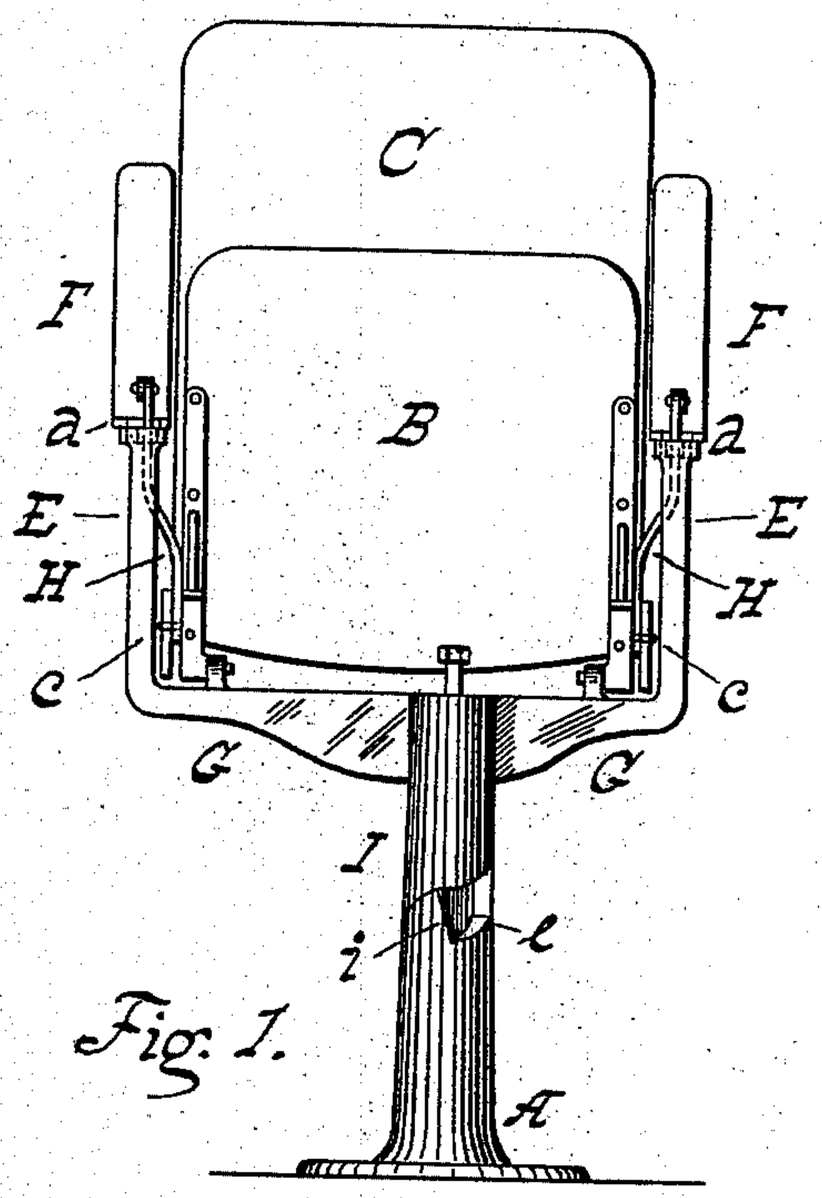

Fig. 1.

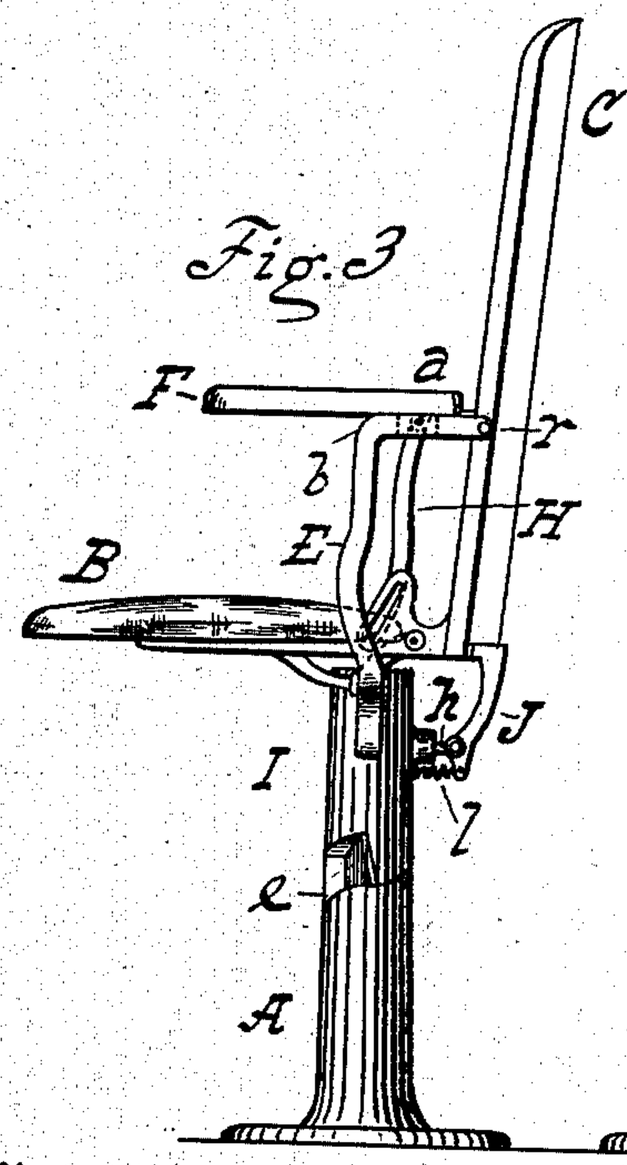

Fig. 3

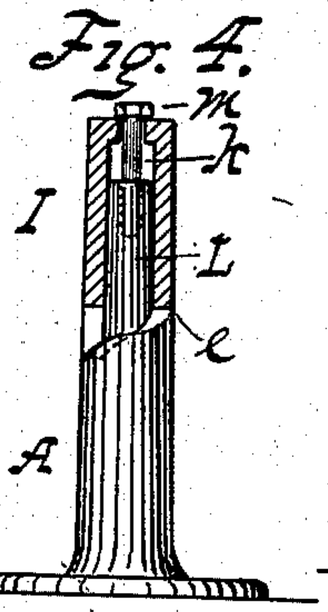

Fig. 4.

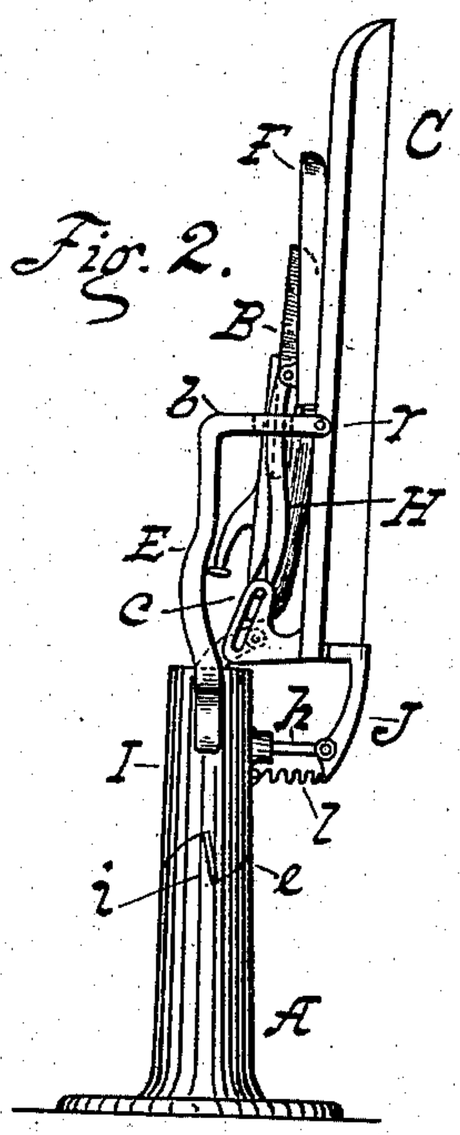

Fig. 2.

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UNITED STATES PATENT OFFICE.

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OPERA-CHAIR.

SPECIFICATION forming part of Letters Patent No. 714,547, dated November 25, 1902.

Application filed June 8, 1901. Serial No. 63,704. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. WILKINSON, a citizen of the United States, residing at New York city, in the county and State of New York, have invented certain new and useful Improvements in Opera-Chairs, of which the following is a specification.

This invention relates to arm-chairs for audience-halls and known as "opera-chairs," particularly such as are provided with seats and folding arms which fold up against the back to afford space for exit and which are also adapted to turn and rotate one-quarter of a revolution on their support in order to afford free space all around them.

The present improvement comprises a new arrangement and combination of parts whereby the chair is not only caused to turn around a quarter of a revolution automatically on folding up the seat, but when desiring to be used the folded chair automatically opens out, the seat unfolding, and the arms coming down into their horizontal place, all by the act of revolving the chair a quarter of a revolution to its place of occupancy.

To enable others to practice my invention, I have shown the same in the annexed drawings as applied to a folding and revolving chair, such as shown in Patent No. 636,405, granted to Arthur Hosmer, to which patent reference is made for a description of the structure; but the improvement is applicable to other chairs. As described in said patent, the chair is pivotally mounted on a standard or support by means of a pivotal cap-section formed integrally with the chair-frame, the cap having a recess inclosing a head formed on the standard.

In the present structure the recessed cap-section carries branches, sometimes called a "yoke," being part of the chair-body. The portion of the standard on which the recessed cap rotates is reduced in diameter, and the head, as well as the recess therefor in the cap, is dispensed with by adding an extension-stem for steadying the cap-section above the standard.

In the annexed drawings I have shown a rotary and folding seat chair which illustrates my invention, in which—

Figure 1 is a front view of the chair, showing the seat folded up. Fig. 2 is a side view of the chair obtained by turning the same a quarter-revolution to the left, the base of the standard being in the same position as Fig. 1. Fig. 3 is a side view of Fig. 1 as viewed from the right-hand side, but showing the seat unfolded and opened out for use. Fig. 4 is a sectional view of the standard and a portion of the chair-frame.

A is the standard, supporting the chair by its frame.

B indicates the chair-seat, suitably pivoted at the rear to the chair-frame.

C is the chair-back. The standard A has circumferential shoulders *e*, whose surfaces are helical, forming two sets of circular inclines diametrically opposite each other, and the under surfaces of the cap rest on the shoulders *e* and are inclined to correspond. The two sets of helical surfaces of the cap and standard form a stop at *i* where they meet, consisting of an abrupt change of angle which limits the rotation of the chair to a quarter-revolution. The angle of the stop is inclined from the perpendicular, and a piece of wood or leather *i*, Fig. 2, is inserted between the opposed surfaces to form a buffer for reducing the noise of impact. The upper part of the standard above the helical shoulders is diminished in diameter to form a mandrel L, which is fitted in the cap to allow the latter to rotate freely thereon.

To impart firmness to the folding chair when rotating on the standard, I provide an extension-stem *k*, which is fixed in the top of the standard and passes out through the top of the cap. By this means the cap is controlled and steadied in the rising of the chair on the circular inclines. The stem is threaded into the standard and has a head *m*, which serves as an adjustable stop to limit the rising movement of the chair when turned aside and retired. In chairs of this variety as now made the pivotal cap I carries a key *h*, which when the chair is in place and opened out

for occupation locks the chair fast and prevents it from revolving, and said key when the seat in folded condition is turned aside and retired from use also locks the same against unfolding.

The chair is pivotally mounted on the standard by means of a cap-section, which has branches G G integral therewith, forming a part of the chair-frame. Extending upward from the branches G are uprights E, which at the upper end are carried back at right angles and form stationary arm-rests *b* integral therewith.

Folding arm-rests F are hinged at *a* to the fixed arm-rests *b*, so as to allow them to fold and unfold automatically by the folding movement of the chair-seat. For this purpose the arms F are operatively connected with the chair-seat by means of links H, shown as pivoted at the lower end to the side of the seat by trunnions fixed in the frame of the seat, as indicated at *c*, and at the upper end the links are jointed with the arms F. In this manner the arms F are compelled to follow the folding motion of the seat, rising from a horizontal to the upright position, as shown in Fig. 1, by the act of folding up the seat and coming to the horizontal when the seat is opened out, as shown in Fig. 2.

The chair-back is pivoted at *r* to the fixed arms *b*, allowing the back to oscillate thereon, the lower end of the back moving toward and away from the standard when the upper end moves in the contrary direction. The locking-key *h*, adapted to enter a socket therefor in the standard-mandrel L to lock the chair against turning, is jointed to a projection J on the lower end of the chair-back.

The seat is operatively connected with the chair-back, so that the operation of one will move the other. For this purpose the chair-back is provided at the lower end with brackets N, having cam-slots which are engaged by the pivot-trunnions *c* aforenamed, which slide up and down in the slots with the folding action of the seat, the back moving backward slightly at the lower end as and when the seat folds up, while the upper end of the back moves forward, thereby bringing the back to a nearly vertical position when the chair as a whole is in the folded condition.

By the operative connection of the seat with the chair-back in the manner described while neither can move without the other either one may be moved by the other. Thus when the chair is being folded up preparatory to being turned a quarter-revolution from the place of use to a place of retirement the act of so folding the seat causes the trunnions thereon working in the cam-brackets N to move the back outward, withdraw the key *h*, and unlock the chair from the standard, whereupon, obeying its own weight acting through the inclined surfaces of the cap and standard, the chair automatically revolves a quarter-turn and descending slightly retires to a position at right angles to that when occupied for use. When the chair is thus folded up and retired, the key *h* then rests on the solid part of the mandrel L within the standard, and by preventing any motion of the chair-back locks the seat in folded condition.

When the chair is desired for use and is to be unfolded, it is first turned forward a quarter-revolution from its place of retirement to that of occupation, and the key is brought to its socket in the mandrel L, releasing such key, allowing the chair to be unfolded for use. It is of advantage when the chair is thus turned to its place for use to have the chair-seat open out automatically ready for occupation immediately upon coming into position.

It is a feature of my present improvement that by the act of turning the chair on the standard to bring it to its normal position for occupancy the chair automatically unfolds and opens out, presenting all the parts in their place for use. In order to accomplish this, means are provided for causing the chair-seat, immediately upon the locking-key being released, to spring away from the chair-back at the upper edge. For this purpose a suitable spring is introduced and applied in such a manner as to produce the desired effect, and for illustration I have shown a spring *l*, Figs. 2 and 3, attached by one end to the projection J of the back C and by the other end to the cap I of the chair-frame. When the seat is folded up, the spring is slightly distended, and when the key is released, as aforesaid, to enter its socket the spring gives a slight pull to the chair-back, which by its operative connection with the seat gives the latter an outward impulse, causing it to unfold, the action being completed by the weight of the seat. In this manner the chair is caused to open out automatically, the seat unfolding and the arms coming down to their place, as shown in Fig. 3, by the act of turning the chair into position to be occupied.

The foregoing improvements may be modified without departing from the essential invention set forth. The spring *l* in some cases may be made to encircle the key *h*.

I claim as my invention—

In a chair, the combination of a standard, a frame rotating upon the standard, a seat hinged to the frame and folding up against the back, a folding back hinged to the frame, means connecting the seat and back, means for locking the frame to the standard against rotation, impelling means for positively moving the lower end of the back inwardly when the chair is in position to be unfolded, whereby an initial opening movement is given to the seat by the impact of the back against the seat.

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