May 10, 1938. B. MATHSSON 2,117,189

TILTABLE CHAIR

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FIG. 1

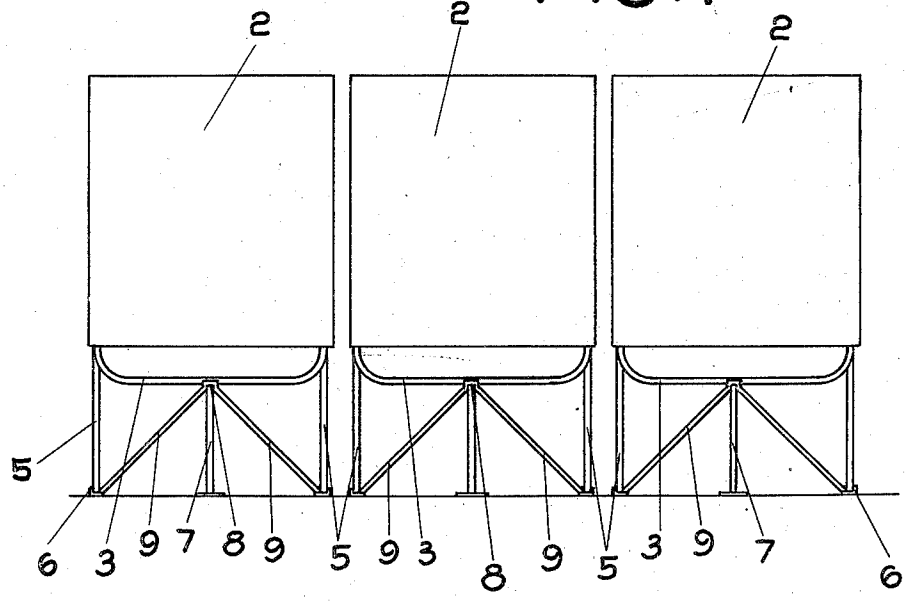
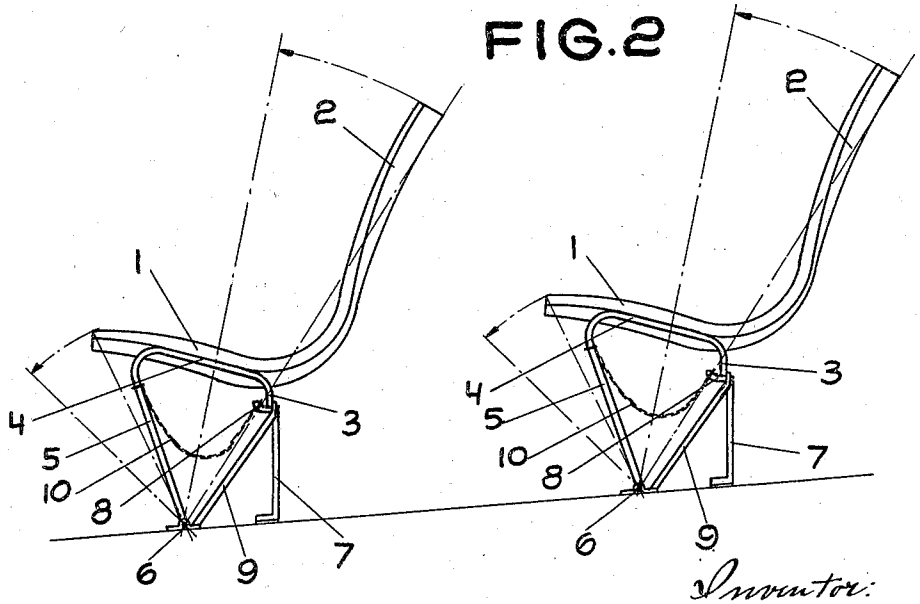


FIG. 2



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TILTABLE CHAIR

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7 Claims. (Cl. 155—115)

The present invention refers to an improvement in tiltable chairs adapted for use in public localities of different kinds such as for instance cinemas and other theatres etc., in which the chairs are arranged in rows one behind another with the smallest practicable space between the rows.

The chairs hitherto used for such purpose have generally been provided with tiltable seats, whereas the other constructional elements of the chairs have been rigidly connected with each other and with the floor, and a plurality of chairs in the same row have frequently been connected with each other.

Apart from the circumstance that such known chairs provided with tiltable seats will frequently cause a disturbing noise when the seats are tilted up and down, they have also the draw-back that a sitting person must raise himself and stand up in front of the row of chairs so as to permit another person to pass by. This is rather uncomfortable to the person previously sitting, and besides he will obscure the field of vision of the persons sitting behind him, thereby causing substantial inconvenience for instance during progress of a performance or the like.

The principal object of the present invention is to eliminate these drawbacks, or inconveniences, and also provide for a better and more comfortable sitting posture. This last mentioned advantage can be gained due to the fact that the seat may be rigidly connected with the back rest of the chair so that these constructional elements may be given any desired shape adapted for obtaining a comfortable sitting posture without giving consideration to any tiltability of the seat in relation to the back rest.

In such chairs having their seats rigidly connected with the corresponding back rests, the present invention is mainly characterized by the fact that the seat, together with the back rest is tiltable about an axis positioned adjacent to the floor substantially beneath the middle of the seat and extending substantially parallel with the row of chairs, and that the chair when tilted into a normal sitting position rests upon the upper end of a rigid standard connected to the floor, so that the chair will get a fixed and invariable sitting position from which it may be tilted forwardly only.

By this construction, the chair as a whole, apart from the said standard, may be tilted forwardly from the sitting position to a sufficient degree for permitting a person freely to pass by in front of the next rear row of chairs, and such tilting movement may easily and comfortably be performed without causing the person sitting on the tilted chair to rise.

A preferable embodiment of the invention is described in the following and illustrated in the accompanying drawing in which:—

Fig. 1 shows a row of three chairs viewed from behind, and

Fig. 2 shows a side elevation of two chairs placed one behind the other and representing two rows of chairs.

The seat 1 and the back rest 2 are constructed in the shape of a rigid unity and supported by a substantially stirrup-shaped supporting member comprising a rear cross bar 3, which is somewhat offset downwardly, two side bars 4 (Fig. 2) forming extensions of the ends of the bar 3 and positioned substantially horizontally or at a small inclination upwardly and forwardly, and two leg bars 5 forming extensions of the front ends of the bars 4 and positioned substantially vertically or at a small inclination upwardly and forwardly. The lower ends of the bars 5 are hingedly connected with the floor by means of bearing brackets 6 affixed to the floor by means of screws, or equivalents, so that the supporting member as a whole and the seat and back rest supported by the same are tiltable around an axis adjacent to the floor and substantially parallel with the corresponding row of chairs.—The supporting member may naturally be shaped otherwise than described in the foregoing, and a plurality of variations thereof may be used for the same purpose, but it has been found in practice that the construction shown and described is both simple and very advantageous from several aspects.

In the drawing, the chairs are shown in their normal sitting position, and in this position each chair is supported at its rear by means of a standard 7, which is rigid itself and rigidly secured to the floor, such standard forming at its upper end a rather wide bearing seat 8 for the middle portion of the rear cross bar 3 of the supporting member. The wide shape of the bearing seat 8 is designed to catch the rear cross bar 3, even in case the supporting member should tend to sag a little due to the weight of the sitting person.

The bearing seat 8 must naturally also have an exactly fixed position, and since the standard 7 itself may perhaps be insufficient for such purpose under all circumstances, the standard is combined with a couple of stays 9 preferably

made in one piece and extending from the bearing seat **8** in a downward inclination toward both sides and to the bearing brackets **6** for the support member **3—5**. The bearing seat **8** is preferably shaped substantially into a flat hook which is open upwardly for catching the rear cross bar **3** when the chair is tilted backwardly into its normal sitting position.

The rear supporting means, including the standard, its bearing seat and the inclined stays, may naturally also be constructed in other ways while maintaining their function, but also in this connection practice has shown that the construction shown and described is especially simple and adapted to its purpose.

The manner of tilting the chair forwardly is easily gathered from the foregoing without additional explanations, and in case it is desired it is also possible to limit the forward tilting movement by some suitable means such as a small chain **10** connecting the supporting structure with the upper end of the standard **7**, or by means of lugs on the ends of the leg bars **5** coacting with abutments on the floor or on the bearing brackets **6**. Several other variations of such tilting movement limiting means are obvious.—In any case it is understood that the forward tilting movement may comfortably be effected without the necessity for the sitting person to rise.

The supporting structure of the chair is preferably made from tubular steel, and in case it is desired each chair may also be supported by more than one bearing seat when tilted into normal sitting position, whether such bearing seats are supported by one and the same standard or not. One single standard may for instance be provided with a cross bar at its upper end, and such cross bar may be provided with a bearing seat at each end, or two bearing seats may be provided each at the upper end of a separate standard, whether such spaced standards are interconnected or not, and in all of these connections the standards may be combined with suitable stays so as to provide for sufficient rigidity.

It is not absolutely necessary that the tilting axis be positioned substantially beneath the middle of the seat, but it may be displaced a little to both sides of said middle. If it is displaced too far forwardly, it will be harder to tilt the chair from its sitting position, however, and in case it is displaced too far backwardly, the chair may be tilted forward unintentionally, for instance due to a light push from behind on the back rest, when no person is sitting on the same. Therefore, it is preferable that the tilting axis be positioned substantially as shown and described, though the word "substantially" shall be interpreted as including rather great deviations, as the centre of gravity of the whole chair may of course get different locations depending on the shape of the combined seat and back rest, the padding used etc., and the location of the centre of gravity determines how far the tilting aixs may safely be displaced.

What I claim and desire to secure by Letters Patent is:—

1. In a tiltable chair of the character described, a seat, a back rest rigidly connected with said seat, a supporting structure for the combined seat and back rest, means for hingedly connecting said structure with the floor and adapted to make it tiltable around an axis positioned beneath the seat substantially at the middle of the same and extending substantially parallel with the row of chairs, and rigid standard means rigidly secured to the floor against which said supporting structure bears when the chair is in a normal fixed sitting position and from which it can be tilted forwardly only.

2. In a tiltable chair according to claim 1, the additional feature of means for limiting the forward tilting movement.

3. In a tiltable chair of the character described, a seat, a back rest rigidly connected with said seat, a supporting structure for the combined seat and back rest, such structure including a rear cross bar, forwardly extending side bars at both sides of the seat, such bars forming continuations of the ends of said cross bar, and downwardly extending leg bars forming continuations of said side bars, means for hingedly connecting the lower ends of the leg bars with the floor and adapted to make them tiltable around an axis positioned beneath the seat substantially at the middle of the same and extending substantially parallel with the row of chairs, and rigid standard means rigidly secured to the floor and adapted to engage said cross bar to keep the chair in a fixed sitting position from which it can be tilted forwardly only.

4. In a tiltable chair according to claim 3, the additional feature of means for limiting the forward tilting movement.

5. In a tiltable chair of the character described, a seat, a back rest rigidly connected with said seat, a supporting structure for the combined seat and back rest and rigidly connected with the same, means for hingedly connecting said structure with the floor and adapted to make it tiltable together with said seat and back-rest around an axis positioned beneath the seat substantially at the middle of the same and extending substantially parallel with the row of chairs, rigid standard means rigidly secured to the floor against which said supporting structure bears when the chair is in a normal fixed sitting position and from which it can be tilted forwardly only, and stay means extending from the upper end of said standard means to the hinges connecting the said supporting structure with the floor.

6. In a tiltable chair of the character described, a seat, a back rest rigidly connected with said seat, a supporting structure for the combined seat and back rest, such structure including a rear cross bar, means for hingedly connecting said structure with the floor and adapted to make it tiltable around an axis positioned beneath the seat substantially at the middle of the same and extending substantially parallel with the row of chairs, a rigid standard means rigidly secured to the floor, and bearing seat means at the upper end of said standard adapted to form an abutment for the aforementioned rear cross bar so as to keep the chair in a fixed sitting position from which it can be tilted forwardly only.

7. In a tiltable chair according to claim 6, the additional feature of stay means extending from the upper end of the standard means to the hinges connecting the supporting structure with the floor.

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