No. 694,163. Patented Feb. 25, 1902.

F. D. LA COURSIERE & J. B. STEFFEN.

FOLDING CHAIR.

(Application filed Apr. 26, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 2.

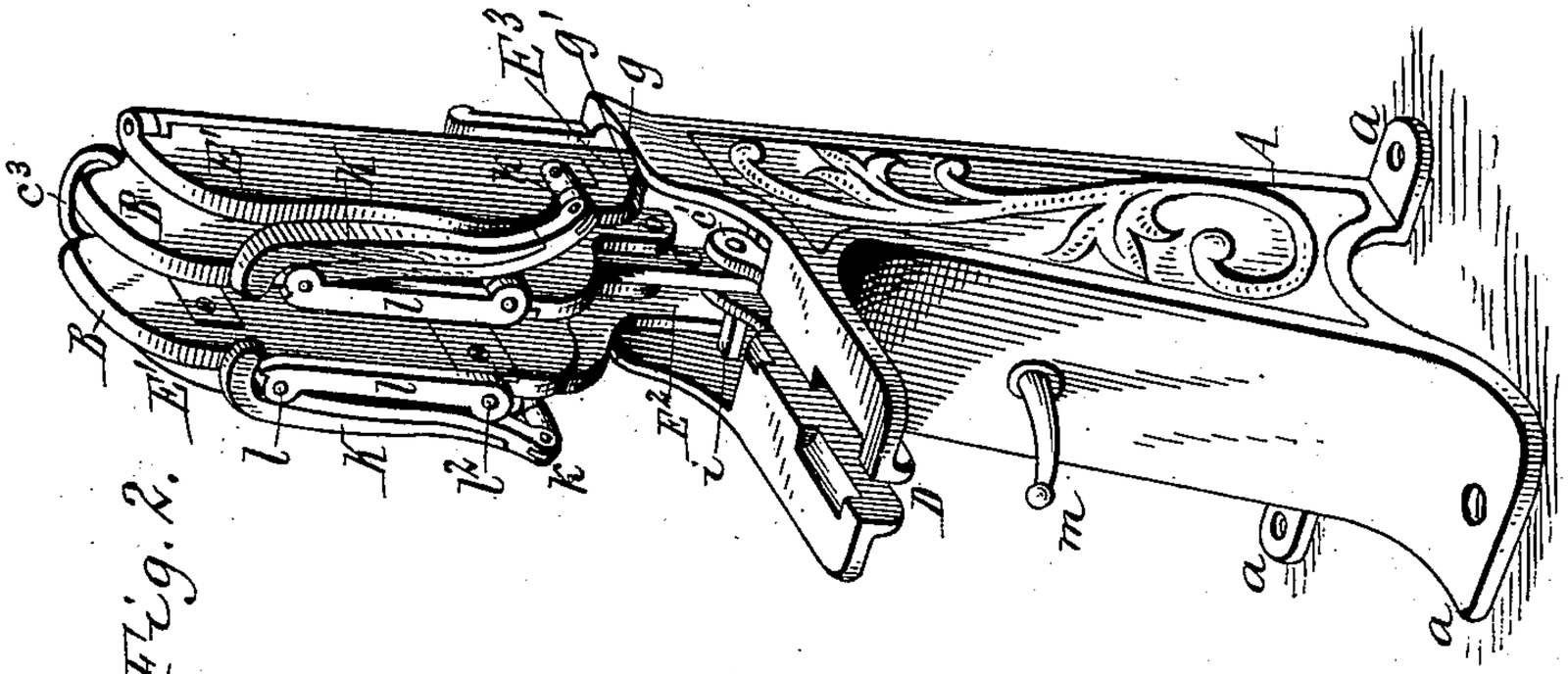

Fig. 1.

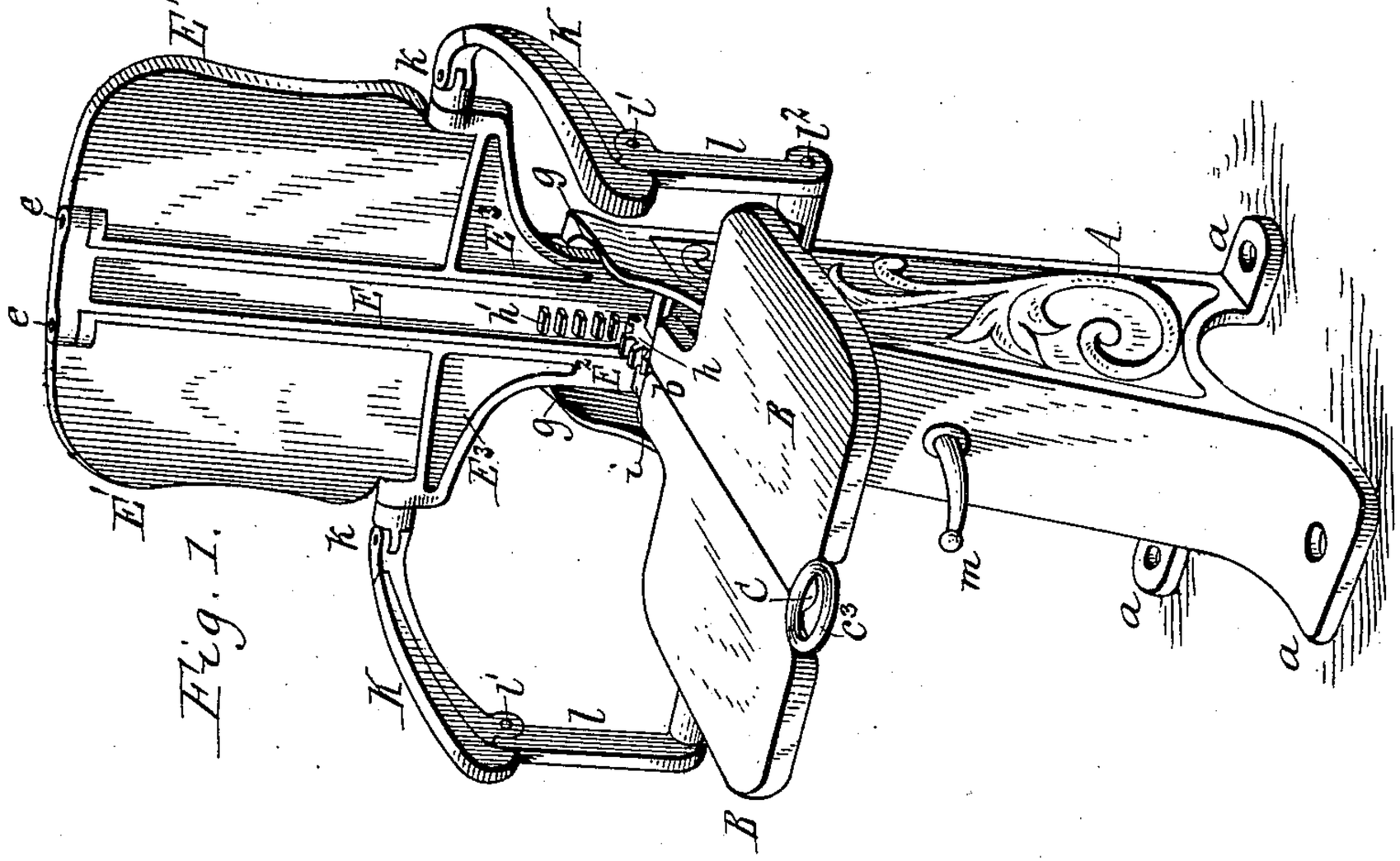

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Fig. 5.

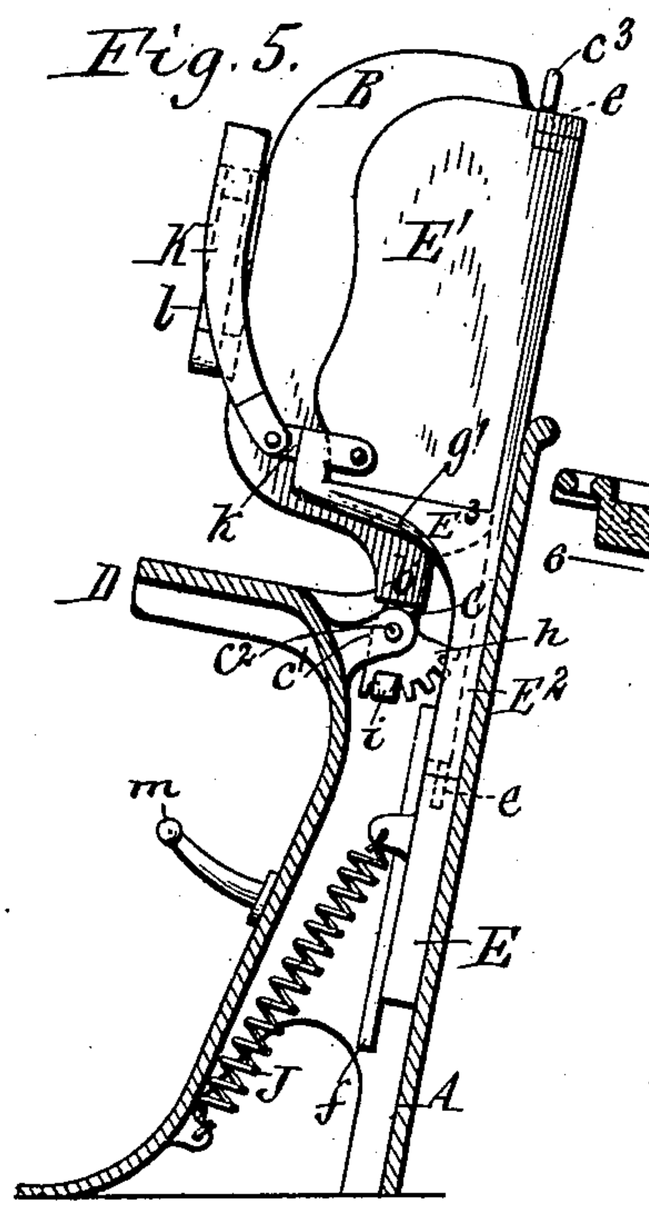


Fig. 3.

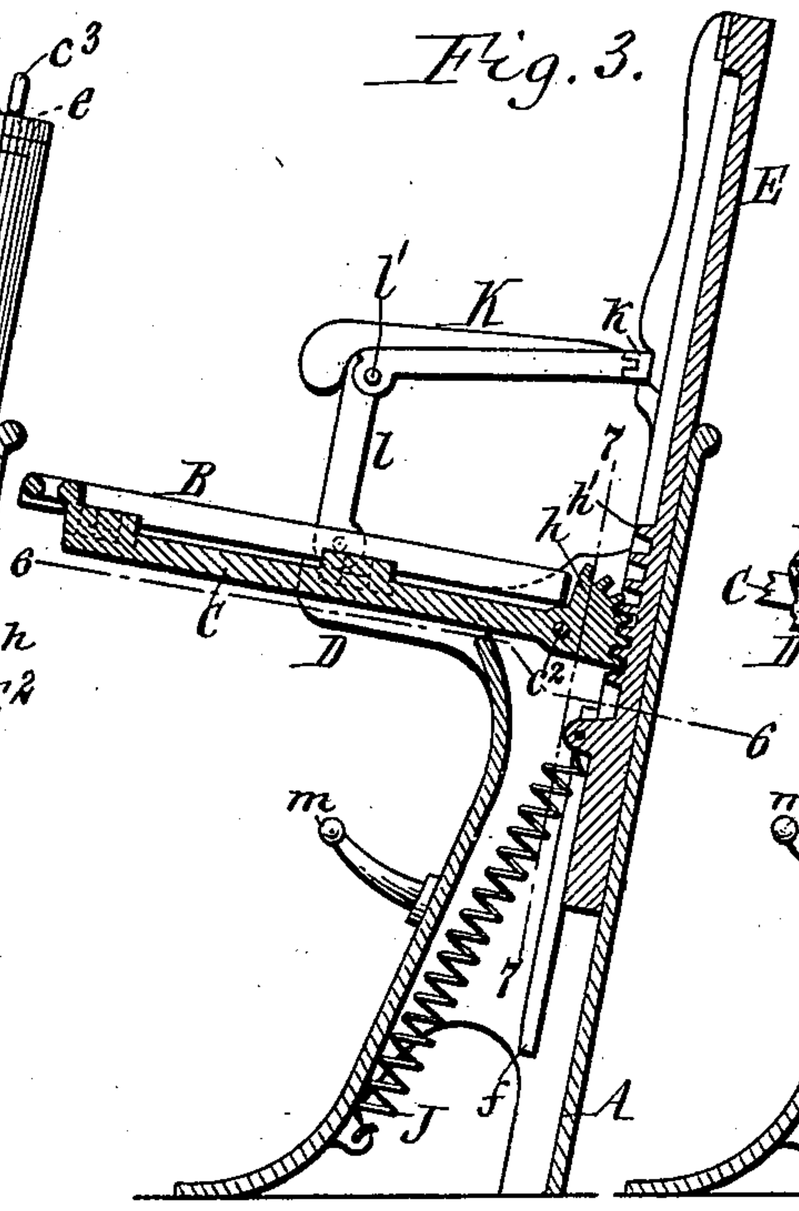


Fig. 4.

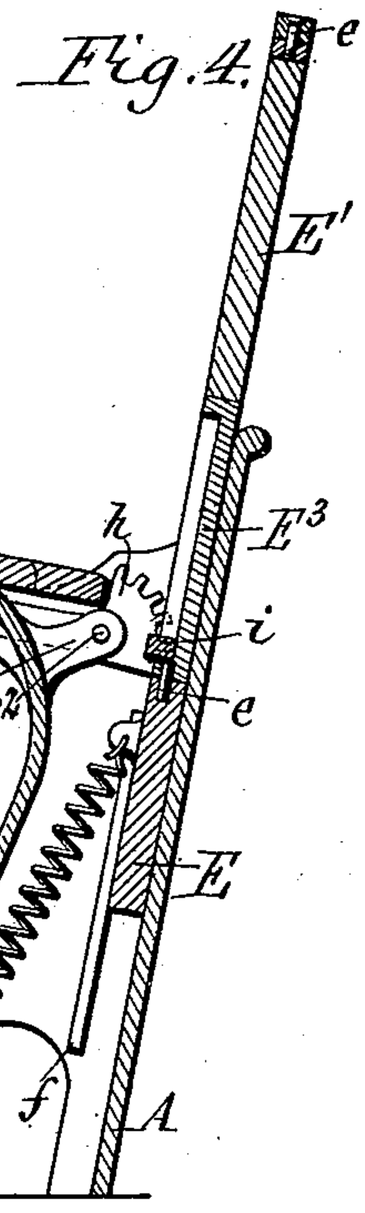


Fig. 7.

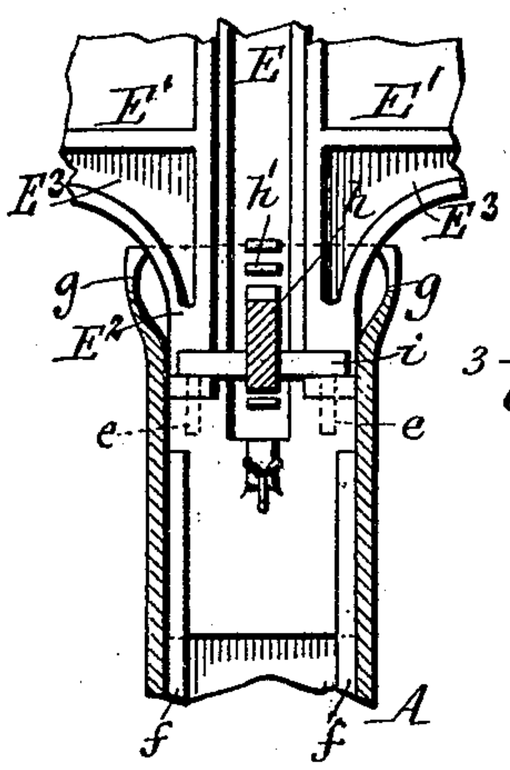


Fig. 6.

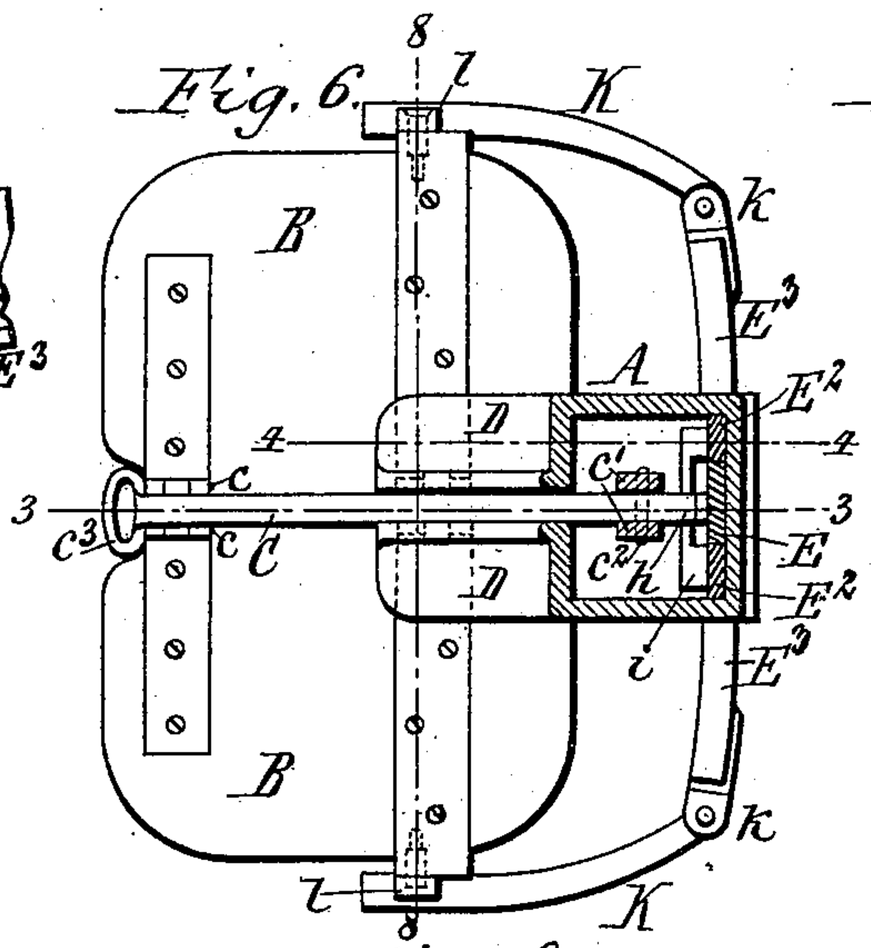


Fig. 9.

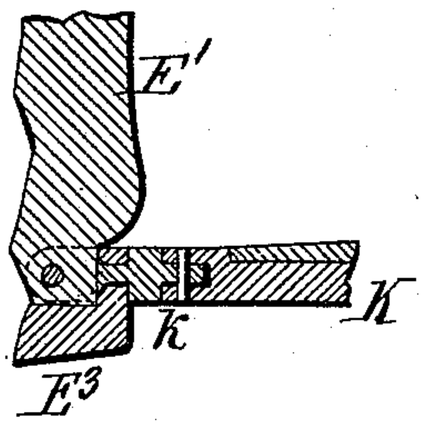
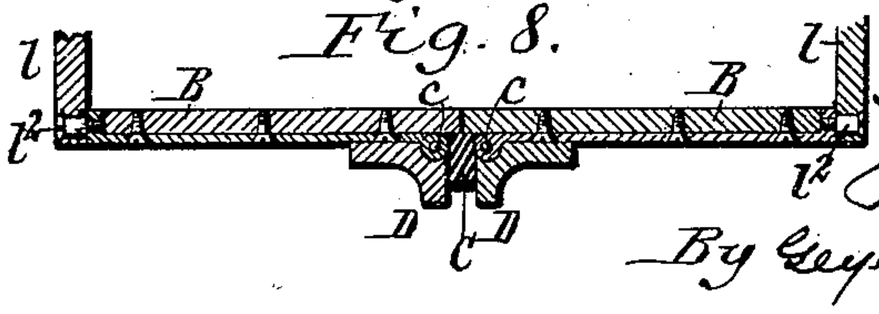


Fig. 8.



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UNITED STATES PATENT OFFICE.

FRANK D. LA COURSIERE AND JOHN B. STEFFEN, OF BUFFALO, NEW YORK.

FOLDING CHAIR.

SPECIFICATION forming part of Letters Patent No. 694,163, dated February 25, 1902.

Application filed April 26, 1901. Serial No. 57,566. (No model.)

To all whom it may concern:

Be it known that we, FRANK D. LA COURSIERE and JOHN B. STEFFEN, citizens of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Folding Chairs, of which the following is a specification.

Our invention belongs to the class of folding chairs used principally in theaters and similar public places, and relates more particularly to chairs of this kind in which the seat and the back are composed of folding leaves and connected together to move in unison, so that each of the main folding members is automatically folded and unfolded by the movement of the other member.

The objects of our invention are to simplify the devices by which the seat and the back are caused to fold and unfold together and to render the chair so compact in its folded condition that when such chairs are placed in rows in a theater or other auditorium comparatively wide aisles are left between adjacent chairs lengthwise of the auditorium as well as between the transverse rows of chairs, forming numerous aisles in addition to the usual main aisles and permitting a speedy exit of the audience in case of a fire or a panic.

In the accompanying drawings, consisting of two sheets, Figure 1 is a perspective view of our improved chair, showing the same unfolded. Fig. 2 is a similar view showing the chair folded. Fig. 3 is a vertical section of the chair in line 3 3, Fig. 6. Fig. 4 is a similar view in line 4 4, Fig. 6. Fig. 5 is a side elevation of the folded chair with the near side of the pedestal cut away. Fig. 6 is a horizontal section in line 6 6, Fig. 3, looking upward. Fig. 7 is a transverse section in line 7 7, Fig. 3. Fig. 8 is a transverse vertical section in line 8 8, Fig. 6. Fig. 9 is a longitudinal section of one of the universal joints which connect the arm-rests with the leaves of the chair-back, showing the position of the parts when the chair in unfolded.

Like letters of reference refer to like parts in the several figures.

A is the standard or pedestal of the chair, which is preferably rectangular in form and flared toward its base and provided at its base with perforated ears *a* for the passage of suitable fastenings.

The chair-seat is composed of two leaves or sections B, which meet in a longitudinal joint in the center of the seat and are hinged at their inner lower edges to a supporting-arm C, as shown at *c*, so as to fold downwardly and forwardly, with the under sides of the leaves facing each other. The supporting-arm is pivoted at its inner end to internal lugs *c'* of the standard A by a transverse pin c^2, as shown in Figs. 2, 4, 5, and 6, so that the arm is capable of swinging upwardly to the upright position (shown in Fig. 2) or to the substantially horizontal position. (Shown in Figs. 1, 3, 4, and 6.) This arm is provided at its outer end with a handle c^3, which in the unfolded position of the seat occupies a recess formed in the meeting front portions of the seat-leaves and is flush with the upper side of the seat, as shown in Figs. 1 and 3. The arm C is arranged below the plane of the seat-leaves, and its handle c^3 is raised above the plane of the arm, as shown in Fig. 3, to bring the handle substantially flush with the recessed seat-leaves when the latter are lowered.

D represents supports or ledges for the unfolded seat, projecting forwardly from the upper end of the standard A and separated by a space which receives the supporting-arm C when the latter is in its lowered position, as shown in Figs. 6 and 8. As shown at *b* in Fig. 1, the seat-leaves B are contracted at their rear ends and extend rearwardly into the hollow standard.

The back of the chair is composed of an upright or slightly-inclined center bar E and a pair of horizontally-swinging leaves or sections E', which are hinged at their inner edges to opposite sides of said center bar by pintles *e*, preferably arranged at the upper and lower ends of the leaves. The center bar E extends into the standard A and is capable of sliding vertically therein, the bar being guided between the rear wall of the standard and ribs *f*, projecting inwardly from the side walls of the standard, as shown in Figs. 3, 4, 5, and 7. The lower portions E^2 of the back-leaves are contracted and extended into the upper portion of the hollow standard, and the side walls of the standard are pro-

vided at their upper edges with cam-faces or guides *g*, which are so shaped that they cause the back-leaves to fold forwardly toward each other by contact with said cam-faces when the center bar E is moved downwardly on the standard. To facilitate this folding action of the back-leaves, their lower edges are beveled, as shown at *g'*. In the construction shown in the drawings the lower portions of the back-leaves are formed by laterally-extending wings E^3, formed integral with the center bar E, and the latter is made of metal, while the leaves E' are made of wood.

The seat-carrying arm C is provided on the rear side of its pivot with a gear-segment *h*, which meshes with a vertical row of gear-teeth *h'*, carried by the sliding center bar E, so that upon swinging the supporting-arm upwardly the center bar and the back-leaves carried by the same are lowered on the standard A, while upon depressing said arm the center bar is raised. The gear-segment *h* is provided at its lower or front end with a transverse locking-bar *i*, which projects laterally on both sides of the segment and which extends across the contracted lower ends E^2 in the unfolded condition of the chair, as shown in Figs. 1, 4, 6, and 7, thereby locking the back-leaves against forward movement. Upon folding the chair the locking-bar *i* recedes from the contracted lower ends of the back-leaves, permitting the latter to fold without restraint, as shown in Fig. 5.

J is a spring arranged within the standard A and connecting the lower portion of the sliding center bar E with the standard. This spring is strained when the chair is unfolded and lowers the center bar when the occupant leaves the chair, thereby automatically folding the chair.

K represents arm-rests pivoted at their rear ends to the outer edges of the back-leaves E' by universal joints *k* of any suitable or well-known construction and having their front ends connected with the outer edges of the seat-leaves B by links *l*. These links are pivoted to the arm-rests and the seat-leaves by transverse pivots *l' l²*.

m is a horn or support for a hat, which horn projects from the front side of the standard A.

In the normal unfolded condition of the chair the seat-leaves B rest upon the ledges or supports D and the unfolded back-leaves are in their elevated position and prevented from folding forwardly by the locking-bar *i*, extending across the front side of their contracted lower portion. When the occupant leaves the chair, the strained spring J reacts and lowers the sliding center bar E to the position shown in Fig. 5, causing the lower edges of the wings E^3 to ride over the cam-faces *g* of the standard and automatically folding the back-leaves forwardly parallel with each other, as shown in Fig. 2. At the same time the supporting-arm C is swung upwardly and rearwardly between the folded back-leaves through the medium of the gear-segment *h* and the gear-teeth *h'*, elevating the seat-leaves to the position shown in Figs. 2 and 5. As soon as the supporting-arm rises the seat-leaves fold partly by gravity, and upon entering between the partly-folded leaves of the back they are further folded by said leaves to the position shown in the last-mentioned figures. As the seat swings upwardly the links *l* fold forwardly parallel with the edges of the seat-leaves and the arm-rests fold upwardly to a position in front of the folded leaves, as shown in Fig. 2, the universal joints *k* permitting of the necessary compound movement of the rear ends of the arm-rests for this purpose. In order to unfold the chair, the supporting-arm C is lowered by grasping its handle c^3. The seat-leaves are automatically unfolded partly by the action of the arm-rests K and links *l* and partly by coming in contact with the stationary ledges or supports D, and the back-leaves are automatically unfolded at the same time by the upward and rearward movement of the locking-bar *i*, which latter bears against the contracted lower portions E^2 of the back-leaves. As the back-leaves are elevated by the unfolding movement of the seat their contracted lower portions recede from the cam-faces *g* of the standard, permitting the back-leaves to unfold freely.

If desired, the automatic folding-spring J may be omitted, in which case the chair is folded by grasping the handle of the supporting-arm C and swinging the arm to an upright position.

While we have herein shown and described a chair having arm-rests, these rests may in some cases be omitted, if desired, without affecting the folding and unfolding movements of the seat and the back.

The seat is preferably constructed to project above the back in the folded condition of the chair to afford convenient access to the handle of the supporting-arm C, as shown in Fig. 2.

We claim as our invention—

1. In a folding chair, the combination with a pedestal provided with cams or guides, of a back composed of a vertically-sliding center bar guided on the pedestal, and forwardly-folding leaves hinged to opposite edges of said center bar and having their lower portions arranged to ride over said cams when the center bar is lowered, whereby the back-leaves are automatically folded toward each other, substantially as set forth.

2. In a folding chair, the combination with a pedestal provided at its upper end with cams or guides, of a back composed of a vertically-sliding center bar guided in the pedestal, and forwardly-folding leaves hinged to opposite edges of the center bar and having contracted lower portions which extend into the pedestal, and a vertically-swinging seat provided at its rear end with a locking device which

holds the back-leaves in their unfolded position when the seat is lowered, substantially as set forth.

3. In a folding chair, the combination with a pedestal, of a back composed of a center bar and forwardly-folding leaves hinged to the center bar and provided with contracted lower portions which extend into the pedestal, and a vertically-folding seat hinged to the pedestal and provided on the rear side of its pivot or hinge with a transverse locking-bar which extends across the contracted lower portions of the back-leaves in the normal position of the seat, substantially as set forth.

4. In a folding chair, the combination with a pedestal, of a back composed of a vertically-sliding center bar provided on its front side with a vertical row of gear-teeth, and forwardly-folding leaves adapted to engage against the pedestal when said center bar is lowered, and a vertically-folding seat provided at its rear end with a gear-segment which engages with the gear-teeth of said center bar, substantially as set forth.

5. In a folding chair, the combination with a pedestal provided at its upper end with cams or guides, of a back composed of a vertically-sliding center bar guided in the pedestal and provided with a vertical row of gear-teeth, and forwardly-folding leaves hinged to the center bar and having contracted lower portions extending into the pedestal and folding faces arranged to ride over the cams of the pedestal when the center bar is lowered, and a vertically-folding seat having a gear-segment which meshes with the toothed center bar and a transverse locking-bar arranged to extend across the contracted lower portions of the back-leaves in the lowered position of the seat, substantially as set forth.

6. In a folding chair, the combination with a pedestal, of a vertically-movable back guided on the pedestal and provided with a vertical row of gear-teeth, a vertically-folding seat having a gear-segment which meshes with said gear-teeth, and a folding-spring connecting the vertically-movable back with the pedestal, substantially as set forth.

7. In a folding chair, the combination with a pedestal provided at its upper end with cams, of a back composed of a vertically-sliding center bar guided in the pedestal and provided with a vertical row of gear-teeth, and forwardly-folding leaves hinged to the center bar and having their lower portions arranged to ride over said cams, a vertically-folding seat pivoted to the pedestal and provided with a gear-segment which meshes with said gear-teeth, and a spring connecting the lower portion of said center bar with the pedestal, substantially as set forth.

8. In a folding chair, the combination with a pedestal having forwardly-extending seat-supports separated by an intervening space, of a vertically-swinging seat-carrying arm pivoted to the pedestal and arranged to enter between said seat-supports when lowered, substantially as set forth.

9. In a folding chair, the combination with a pedestal, of a seat composed of folding leaves provided at their adjoining front corners with recesses, and a vertically-swinging arm, pivoted at its rear end to the pedestal and carrying said leaves, said arm being arranged below the plane of the seat-leaves and provided at its front end with a handle which is located above the plane of the arm and arranged in the recesses of the seat-leaves, substantially as set forth.

10. In a folding chair, the combination with a pedestal, of a vertically-swinging seat pivoted to the pedestal and composed of hinged leaves, a back having forwardly-folding leaves, a pair of arm-rests, universal joints connecting the rear ends of said arm-rests with the leaves of the back, vertical links extending downwardly from the front ends of the arm-rests to the lateral edges of the seat-leaves and transverse pivots connecting the ends of said links with said arm-rests and seat-leaves, respectively, substantially as set forth.

Witness our hands this 23d day of April, 1901.

FRANK D. LA COURSIERE.
JOHN B. STEFFEN.

Witnesses:
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