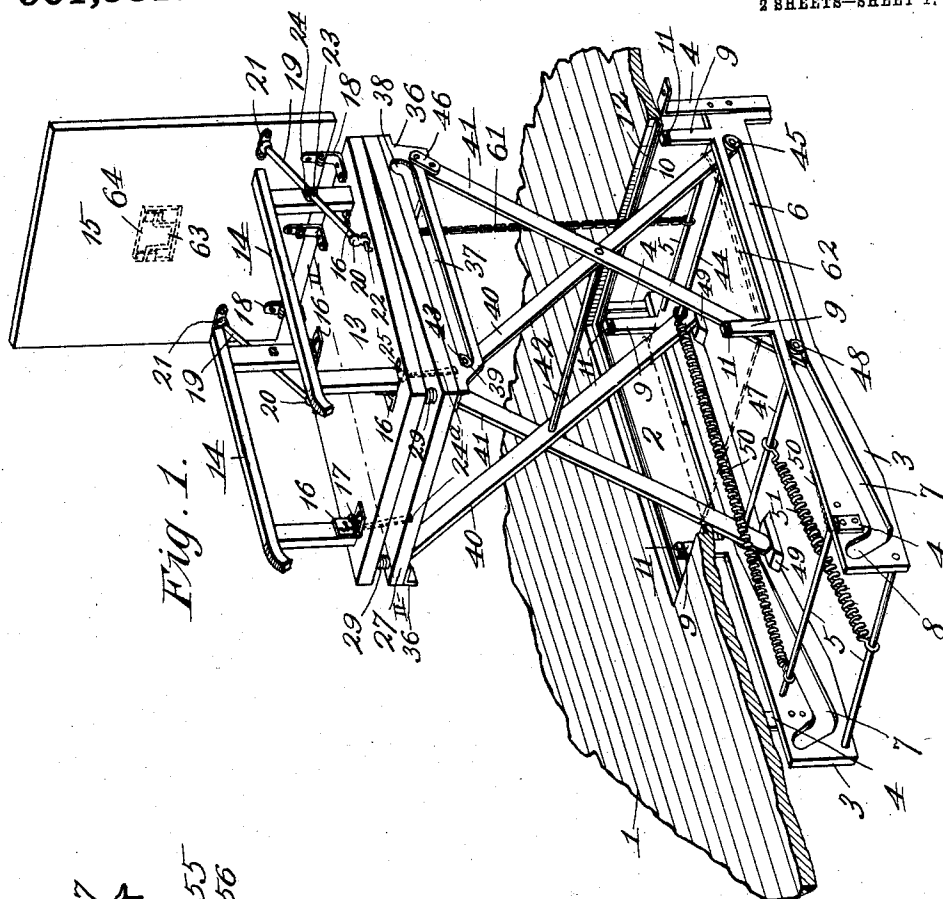
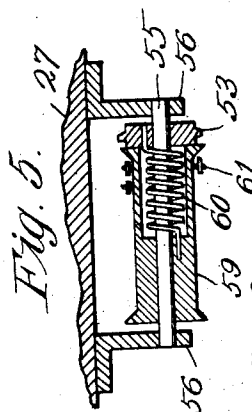
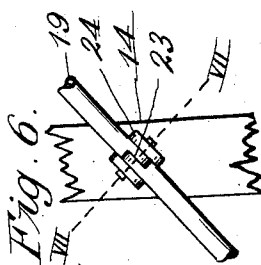
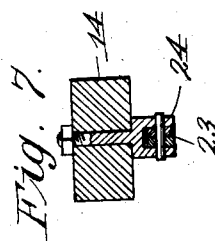


Patented Oct. 20, 1908.

901,581.

2 SHEETS—SHEET 1.



Witnesses:
R. Hamilton.
M. Cox

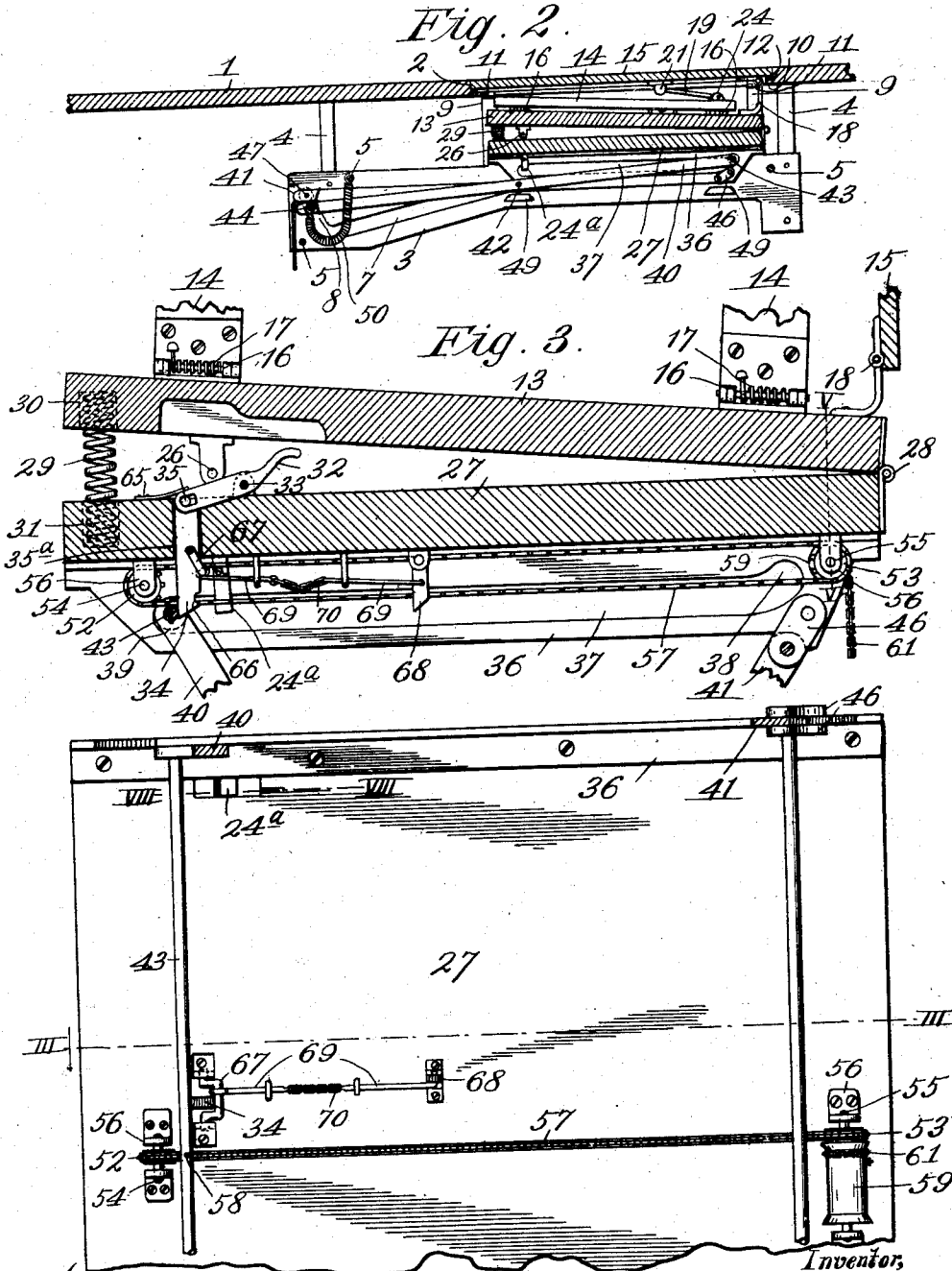
Inventor:
Charles O. Austin,
 By *F. G. Fischer, atty.*

C. O. AUSTIN.
AUTOMATIC FOLDING CHAIR.
APPLICATION FILED JAN. 14, 1908.

Patented Oct. 20, 1908.

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3 SHEETS—SHEET 2.



Witnesses:

R. Hamilton.
M. Cox.

Fig. 4.

Charles O. Austin,

By F. G. Fischer,
att'y.

UNITED STATES PATENT OFFICE.

CHARLES O. AUSTIN, OF KANSAS CITY, KANSAS.

AUTOMATIC FOLDING CHAIR.

No. 901,581.

Specification of Letters Patent.

Patented Oct. 20, 1908.

Application filed January 14, 1908. Serial No. 410,805.

To all whom it may concern:

Be it known that I, CHARLES O. AUSTIN, a citizen of the United States, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented certain new and useful Improvements in Automatic Folding Chairs, of which the following is a specification.

My invention relates to an automatic folding-chair, and is intended for use in the auditoriums of theaters, churches, convention-halls, and other public buildings wherein a large number of people congregate.

The object of the invention is to provide a chair which will, the instant an occupant arises therefrom, automatically fold to a level with the floor of the auditorium, so that the latter may be readily cleared in case of fire, or other accident rendering it desirable to quickly dismiss the audience. When the chair is folded its back is on a level with the floor and forms a part thereof, so that it may be walked upon, or swept, or mopped.

In order that the invention may be fully understood, reference will now be made to the accompanying drawings, in which:—

Figure 1 represents a perspective view of my chair in an upright position ready for use. Fig. 2 is a vertical longitudinal section of the same folded, the section being to one side of the center of the chair as indicated by line II—II, Fig. 1. Fig. 3 is an enlarged broken section on line III—III of Fig. 4. Fig. 4 is a broken inverted plan view of that portion of the chair shown in Fig. 3. Figs. 5, 6, and 7 are details of construction employed in carrying out the invention, and hereinafter more fully described, Fig. 5 being a section on line V—V of Fig. 3, and Fig. 7 being a section on line VII—VII of Fig. 6. Fig. 8 is a broken vertical section on line VIII—VIII of Fig. 4.

1 designates the floor of an auditorium containing the chair, said floor having a rectangular opening 2 in which the back of the chair is adapted to snugly fit.

3 designates a pair of rails beneath the floor. If a basement is below the floor the latter is provided with hangers 4 for supporting the rails, but if no basement exists the rails may be embedded in concrete or otherwise firmly secured in place. Rails 3 are united by a plurality of brace-rods 5, and have longitudinal slots, the rear portions 6 of which are horizontal, while the front portions 7 are inclined and terminate in up-

wardly-extending portions 8. Said rails are also provided with upwardly-extending arms 9, which terminate on a level with the ledge 10 formed by rabbeting the edge of the floor surrounding the opening 2. The upper ends of said arms are provided with cushions 11. Ledge 10 is also provided with a cushion 12.

13 designates the chair-seat which is provided with a pair of folding-arms 14 and a folding-back 15. Arms 14 are secured to the seat by hinges 16 provided with springs 17 which fold the arms down upon the seat when released, as hereinafter described.

Back 15 is secured to the seat by a plurality of hinges 18 and is folded upon the arms by a pair of braces 19, connected to the seat and the back by ball-and-socket joints 20 21, respectively. Sockets 20 are loosely secured to the seat by loops 22, and braces 19 have hinges 23 which are pivotally secured to a pair of clips 24 swiveled to the rear portions of the arms 14. By connecting the braces to the seat, arms, and back, in the manner above described, it is obvious that when said arms fold they will break the braces at the hinge portions 23 and cause them to fold therewith, and in turn fold the back over the arms to the position shown in Fig. 2.

The arms are held in an upright position by a pair of hooks 24^a and a pair of loops 25, which latter depend from the lower front portions of the arms, while the former are pivotally secured to the seat by pins 26. Hooks 24^a have knuckle-joints 24^b which permit their lower ends to swing forward out of the way of a rung 43, hereinafter described.

Seat 13 is secured at its rear end to a frame 27 by a plurality of hinges 28, and is normally tipped upward at its front end by a pair of expansion springs 29, the ends of which rest in sockets 30 31, in the seat and frame, respectively. By thus raising the seat at its forward end it is normally held out of engagement with a trip-lever 32, fulcrumed at 33 to the frame, and carrying a depending plunger 34, with which it has a pin-and-slot connection 35, so that the plunger may move vertically in the opening 35^a, extending through the frame.

Frame 27 is provided at its underside with a pair of angle-bars 36 having longitudinal slots 37 curved upward at their rear ends 38, said slots being provided to receive a pair of rollers 39, carried by a pair of legs

40, which latter in conjunction with a similar pair of legs 41, support the chair. Legs 40 cross legs 41 at about their central portions and all are pivotally connected by a
 5 rung 42. Legs 40 are connected at their upper ends by rung 43 carrying rollers 39, and connected at their lower ends by a rung 44 carrying a pair of rollers 45, which travel in the slotted portions of rails 3.
 10 Legs 41 are connected at their upper ends to the angle-bars 36 by a pair of links 46 and connected at their lower ends by a rung 47, upon which a pair of rollers 48 are mounted, which, like rollers 45, travel in the slotted
 15 portions of the rails 3. The rollers 45 48 are relieved of the weight of the chair and its occupant by the legs and a plurality of lugs 49, which latter extend inwardly from the rails for the lower ends of the legs to
 20 rest upon, as shown in Fig. 1.

50 51 designate retractile springs secured at their ends to rungs 44 47, respectively, and the forward braces 5 for the purpose of automatically folding the chair immediately
 25 upon the occupant arising therefrom.

52 53 designate a pair of sprocket-wheels mounted, respectively, on shafts 54 55, mounted in brackets 56 depending from frame 27. Said sprocket-wheels are connect-
 30 ed by an endless sprocket-chain 57 to which rung 43 is secured by a pin 58.

59 designates a drum loosely mounted upon shaft 55, and yieldingly connected to sprocket-wheel 53 by a spring 60.

35 61 designates a cable connected at its ends to one of the rearmost braces 5 and drum 59.

62 designates a piece of canvas secured to the lower portion of the legs for closing the greater portion of opening 2 when the chair
 40 is in an upright position.

63 designates a handle pivoted to back 15, which latter has a recess 64 in which the handle lies so that it will not project above the upper surface of the back when the chair
 45 is folded.

When it is desired to raise the chair to an operative position, handle 63 is grasped and drawn upwardly until the legs are extended. In pulling upwardly on the chair, cable 61
 50 rotates drum 59 and thus tensions the spring 60 sufficiently to cause the sprocket-wheel 53 to rotate therewith. The sprocket-wheel then transmits motion to the sprocket-chain 57 and through it moves rung 43 forward
 55 until rollers 39 reach, or nearly reach, the forward ends of slots 37. In passing forward rung 43 strikes the beveled side of the plunger 34, and thereby raises the same against the action of a spring 65, which immediately forces said plunger down behind
 60 rung 43 and locks the same from backward movement, so that the chair will be held in its upright position. Back 15 is then swung upward to the position shown in Fig. 1, and
 65 through the intermediacy of braces 19 draws

the arms 14 upward until their loops 25 are engaged by hooks 24^a. The chair is now ready for use. When a person sits down in the chair the forward end of the seat is depressed and compresses the expansion
 70 springs 29. It also depresses the free end of the trip-lever 32, and causes it to raise the plunger out of the path of rung 43 where it is held by its notched portion 66 engaging a yoke 67 pivoted to the underside of frame
 75 27. When the person arises springs 50, which were tensioned when the chair was pulled upwardly, draw the lower ends of legs 40 forward against the lower ends of legs 41 and permit the chair to move down-
 80 ward so that the weight thereof and the combined pull of springs 50 and 51 will draw rollers 45 48 forward into the upwardly-extending portions 8 of the rail slots and force rollers 39 backward into the up-
 85 wardly-extending curved portions 38 of slots 37. As rung 43 moves backward with rollers 39, it will strike a lever 68 depending from the underside of frame 27 and push said lever backward, which latter, through
 90 the intermediacy of connecting-rods and links 69 70, swings yoke 67 out of engagement with the notched portion of the plunger and permits the same to drop to its normal position so that it will be ready to again
 95 engage rung 43, when the chair is raised. In moving backward rung 43 will also strike the hooks 24^a and disengage them from loops 25, so that springs 17 may fold arms 14
 100 upon the seat. As the arms fold they will, through the intermediacy of braces 19, fold the back 15. Thus it will be understood that the folding action of the chair is entirely automatic.

Having thus described my invention, what
 I claim is:

1. A chair consisting of two pairs of folding-legs, a frame to which one pair of said legs are pivotally secured at their upper ends while the upper ends of the companion
 110 pair are arranged to move backward and forward in the frame, resilient means at the lower ends of the legs for folding the same, means carried by the frame for locking the legs in an extended position, and a seat piv-
 115 oted to the frame and adapted to disengage the locking means from the legs.
 2. A chair consisting of two pairs of folding-legs, a frame to which one pair of said legs are pivotally secured at their upper
 120 ends while the upper ends of the companion pair are arranged to move backward and forward in the frame, resilient means at the lower ends of the legs for folding the same, means carried by the frame for locking the
 125 legs in an extended position, a seat pivoted to the frame and adapted to disengage the locking means from the legs, and springs for normally holding said seat out of engage-
 130 ment with the locking means.

3. A chair consisting of two pairs of folding-legs, a frame to which one pair of said legs are pivotally secured while the companion pair are arranged to move backward and forward therein, means for folding said legs, a plunger for locking the legs in an extended position, a lever carrying said plunger, and a self-adjusting seat on the frame for actuating said lever.

4. A chair consisting of two pairs of folding-legs, a frame to which one pair of legs are pivotally secured while the upper ends of the companion pair are arranged to move backward and forward in the frame, a rung connecting the upper ends of said companion legs, a plunger for engaging the rung to lock the legs in an extended position, a lever for lifting said plunger out of engagement with the rung, an adjustable seat above said lever for actuating the same, means for holding the plunger in a raised position, a depending lever in the path of the rung connected to said means for releasing the latter from the lever, and resilient means connected to the legs for folding the same when unlocked.

5. In combination, a floor having an opening therein, a pair of slotted-rails beneath said opening provided with arms, and a folding-chair including rollers mounted in the slotted-rails and back which latter

fills the opening in the floor and rests upon the arms when the chair is folded.

6. In a chair of the character described, a suitably-supported seat, a pair of arms hinged to said seat, loops secured to said arms, hooks carried by the seat and adapted to engage the loops and hold the arms upright, and means for automatically folding the arms when the hooks are released from the loops.

7. In a chair of the character described, a seat, a pair of arms hinged to said seat, locking means for holding the arms upright, means for folding the arms when released, and two pairs of folding-legs for supporting the seat, one of said pairs being adapted, while being folded, to unlock the arms.

8. In a chair of the character described, a suitably-supported seat, a pair of arms hinged to said seat and adapted to fold thereon, a back also hinged to said seat and adapted to fold upon the arms, and braces connected to the seat, arms, and back for causing the arms and back to fold together.

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

CHARLES O. AUSTIN.

Witnesses:

F. G. FISCHER,
M. COX.