

(No Model.)

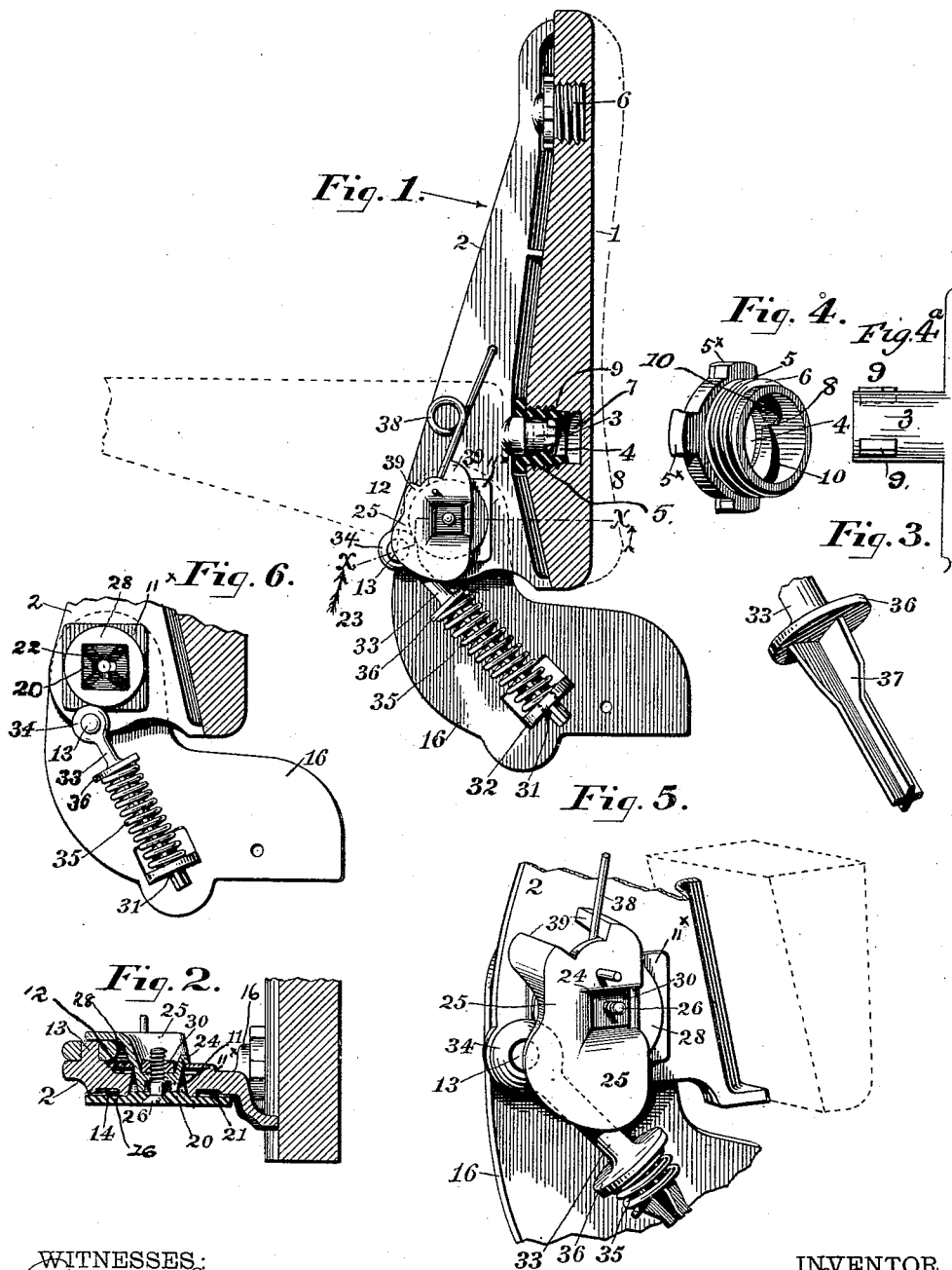
2 Sheets—Sheet 1.

W. SHRIVER.

FOLDING SEAT FOR SCHOOLS, THEATERS, &c.

No. 493,452.

Patented Mar. 14, 1893.



WITNESSES:  
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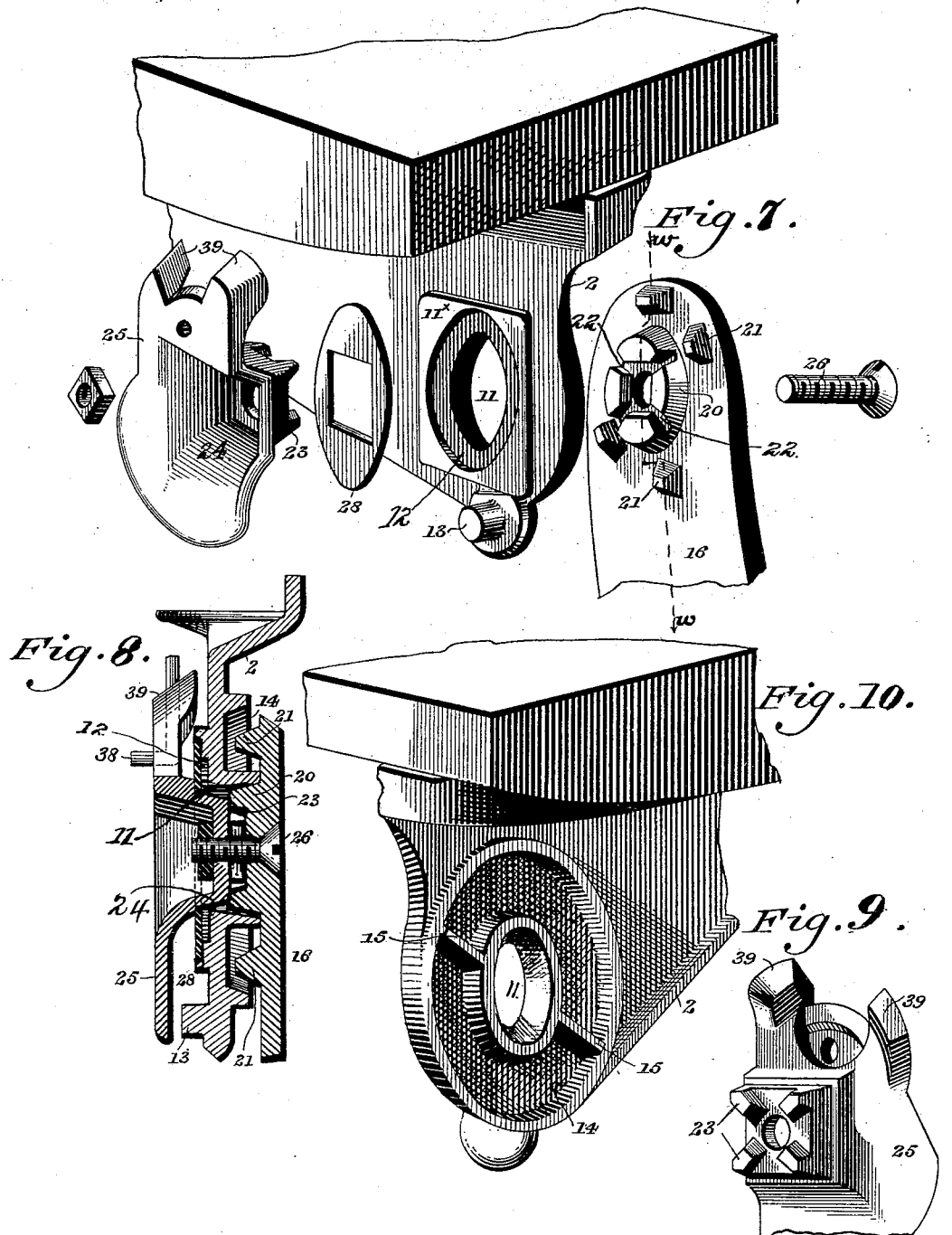
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WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLIAM SHRIVER, OF PHILADELPHIA, PENNSYLVANIA.

## FOLDING SEAT FOR SCHOOLS, THEATERS, &c.

SPECIFICATION forming part of Letters Patent No. 493,452, dated March 14, 1893.

Application filed July 3, 1890. Serial No. 357,688. (No model.)

### *To all whom it may concern:*

Be it known that I, WILLIAM SHRIVER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Folding Seats for Schools, Theaters, &c., which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to improvements in folding seats for schools, theaters, &c., and consists:—first, of mechanism substantially as described for automatically folding the seat when unoccupied.

It further consists of the combination of parts hereinafter set forth.

Figure 1 represents a partly sectional and partly side view of a device embodying my invention, the seat being folded, or in closed position. Fig. 2 represents a sectional view on line *x, x*, Fig. 1, looking in the direction of the arrows Fig. 1 or upward. Fig. 3 represents a perspective view of part of the bar which holds the coil spring for controlling the seat. Fig. 4 represents a perspective view of the securing nut with cams for locking the seat and casting together. Fig. 4<sup>a</sup> represents a side elevation of a lug provided with projecting lips, and which is adapted to enter a nut, and thereby secure together the casting and seat. Fig. 5 represents a perspective view of a portion of the device. Fig. 6 represents a modification, showing the stud for holding the spring bar, in a different position. Fig. 7 represents a perspective view of the portions of the joint, the parts being separated. Fig. 8 represents a sectional view thereof, on the line *w, w*, of Fig. 7, the parts being connected instead of separated, as shown in said Fig. 7. Fig. 9 represents a perspective view of the opposite face of the reinforce plate from that shown in Fig. 7. Fig. 10 represents a perspective view of a portion of the opposite side of one of the castings from that shown in Fig. 7.

Similar numerals of reference indicate corresponding parts in the several figures.

Referring to the drawings: 1 designates a seat which is attached to the plate or movable casting 2 by means of the lugs 3, formed on said casting and adapted to be inserted in the

opening 4 in the movable nuts or blocks 5, which latter have their necks 6 screwed in openings 7 of the seat. The nuts 5 are provided with the angular projections 5<sup>x</sup> on their outer faces, so as to be readily rotated by means of a suitable wrench, and have the passages 8 on their inner faces between the cams 10 for the passage of the lips 9 on the sides of the lugs 3. Said lips extend longitudinally on opposite sides of said lugs, and are of such width as to pass through said passages 8, and have their ends in contact with the cams 10 formed on the inner face of the nut. When the lug has been inserted in the nut, so that the lips have passed through the passages between the cams, the nut is rotated, and as it enters the seat, the cams move against the ends of the lips, thereby drawing the lug with the casting toward the seat, thus binding them together, and yet permitting their separation when desired, by a reverse movement of the nut. One end of the casting 2 is provided with an opening 11, and one side thereof has a circular recess or groove 12 surrounding the edge or wall of the said opening, and also a pin or stud 13. On the other side of the casting is a circular groove 14, surrounding the wall of the opening 11, and having the partition walls 15 in opposite portions thereof.

16 designates a stationary casting or plate having at one end any suitable means whereby it may readily be secured to the back of a desk, or other suitable support. The other end of the casting 16 is pivotally secured to the casting 2 by means of a boss or flange 20, which projects from one side thereof, and fits in the opening 11 of the casting 2. Adjacent to the boss 20 and on the casting 16 are the lugs 21 of pyramidal form, arranged in pairs on opposite sides of the boss, and inserted in the groove 14 on each side of the walls 15. The boss 20 is provided with the radial grooves 22 having inclined walls adapted to receive or seat the ends of the lugs 23 of the angular and depressed portion 24 of a plate 25, the said plate being in contact with a washer 28 having an angular opening therein and which is seated on the wall 11<sup>x</sup> of the groove 12 of the casting 2, and having its lugs 23 which enter the opening 11 interlocked with the end of the boss 20 of the casting 16, whereby the

said plate 25 and casting 16 though on opposite sides of the casting 2 are locked together. A screw 26 or screw-threaded bolt passes through the boss 20, and an opening in the depressed or countersunk portion 24 of the plate 25, and has a non-rotatable nut 30 on its end within the countersunk portion of the plate 25. By these means a pivotal joint is formed between the castings 2 and 16 which permits a play of the seat from a perpendicular to a horizontal position, and a return movement thereof.

To automatically fold the seat out of use the following described mechanism is employed. Adapted to work in an opening 31 in a flange 32 of the plate 16 is a bar 33 having an eye 34 at one end which engages the stud 13 on the plate 2. A coil spring 35 encircles the bar 33 and bears against the flange 32 and a collar 36 on the said bar, so as to cause the bar 33 to bear against the stud 13 and thus raise the outer end of the seat. The bar 33 below its collar 36 is provided with the ribs 37, which strengthens the bar without the addition of much metal thereto, and at the same time affords a larger or wider support for said coil spring 35.

A spring 38 connected with the plates 2 and 25 and adapted to bear against either one of the shoulders 39 on the plate 25 serves to prevent a sudden stoppage of the seat at the end of its movement in either direction.

It will be seen that the spring 35 serves to keep the seat raised or folded except when pressed down; and that the lugs 21 which are in the groove 14 limit the further play or movement of the seat in either direction by reason of the partition walls 15 in the groove 14 coming in contact therewith. When the parts are in position, the inner face of the plate 25 is in contact with the end of the stud 13, thereby preventing the removal of the bar 33 therefrom until the screw 26 is removed, and the plate 25 and casting 16 separated.

When it is desired to remove the seat from the casting 2, the nuts 5 are turned until the passages 8 coincide with the lips 9 of the lugs 3, when the seat can be readily removed from the lugs and casting. By removing the screw 26 from the plates 2 and 16, and raising the depressed portion of the plate 25 out of the opening in the plate 2, and then moving the said plate 25 out of the way of the stud 13, the casting 16 and the bar 33 can be readily disconnected therefrom. The plate 25 serves as a reinforce plate to the plate 16 in forming the joint with the plate 2, and being on the opposite side of the said plate 2 from the plate 16, in connection with the screw 26 and its nut, serves to hold the said parts firmly together. By placing the stud 13 as shown in Fig. 6, the force of the spring 35 can be transferred by sufficiently lowering the seat, to the opposite side of the pivotal connection, so that the seat can be held down by the tension

thereof, until lifted so that the stud is past the line of the spring, and joint.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the plate or casting 2 having the opening 11 and the stud 13, the plate 16 with boss or flange 20, the plate 25 with depressed portion 24 engaging the boss 20 and locking said plates 16 and 25 together, the screw 26, a bar at one end engaging the stud 13 and having a coil spring thereon bearing against a collar on the bar and a flange or ear of the plate 16 through which the bar works, substantially as and for the purpose set forth.

2. The combination of the plate 2 with an opening 11 therein, a groove 14 surrounding said opening and having partitions therein; the casting 16 having the boss 20 with radial grooves on its inner end; a plate having a spring connected with the casting 2, and having a depressed portion provided with lugs, the latter entering said opening 11, and engaging in the grooves of the boss, thereby locking the said castings 16 and plate 25 together, lugs 21 on said plate 16 projecting in said groove 14 and the fastening screw 26 passing through said castings and plate, substantially as described.

3. The combination of a stationary casting, a movable casting hinged thereto, a reinforce plate connected with said stationary casting, a buffer spring connected with said movable casting and reinforce plate, controlling the movement of said movable casting, and a spring connected with said casting for automatically lifting the seat, substantially as described.

4. The combination of a stationary casting, a movable casting having a pivotal connection therewith, a reinforce plate connected with the stationary casting, and having the shoulders 39 thereon, a spring connected with the stationary and movable castings, and adapted to operate the said movable casting, and a spring connected with the movable casting and the reinforce plate, which is held rigidly in connection with the stationary casting, the said spring being adapted to bear against the latter, so as to retard the action of the movable casting at or near the end of its travel, substantially as described.

5. A movable casting having an opening therein, a reinforce plate having shoulders thereon, a stationary casting having a boss interlocking with lugs on the said plate, and a spring connected to the movable casting and to the plate, and adapted to bear against either of the shoulders thereon, said parts being combined substantially as described.

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Witnesses:

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