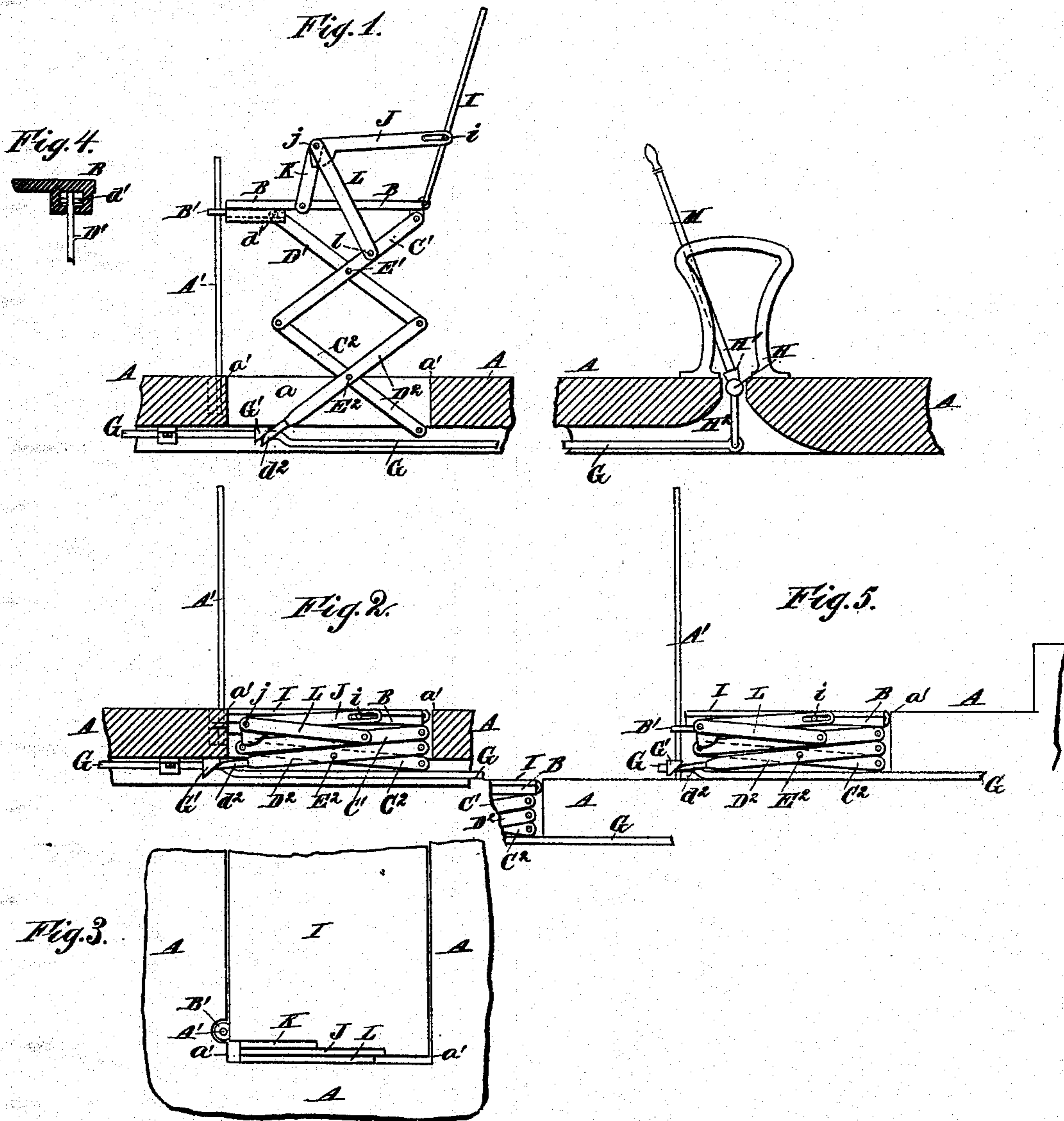


(No Model.)

E. F. UNDERHILL.
SEAT FOR THEATERS, &c.

No. 249,558.

Patented Nov. 15, 1881.



WITNESSES
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UNITED STATES PATENT OFFICE.

EDWARD F. UNDERHILL, OF NEW YORK, N. Y.

SEAT FOR THEATERS, &c.

SPECIFICATION forming part of Letters Patent No. 249,558, dated November 15, 1881.

Application filed May 25, 1881. (No model.)

To all whom it may concern:

Be it known that I, EDWARD F. UNDERHILL, of New York city, in the State of New York, have invented certain new and useful Improvements relating to Seats for Theaters and other Buildings, of which the following is a specification.

In the gradual reception of the attendants in a church, theater, or other large building, narrow passage ways properly distributed are adequate; but when at the close all the sitters wish to go out at once it is desirable to put the seats out of the way and make the whole floor-space available for a passage. This is more especially important in case of a false or real alarm of fire, or other occasion inducing a more than ordinary active movement of the great mass of people.

In this invention I have devised means whereby the seats may be lowered or folded flat upon or into the floor, the movements being controlled by an attendant at a distant point. A man of ordinary strength placed at a commanding point lowers the seats. The mechanism allows him to lower the seats a little at first, sufficiently to warn any who may remain sitting, and then to complete the lowering as rapidly as may be expedient. When the seats are thus lowered the mass of people may walk over them with ease. In what I esteem the most complete form of the invention the floor is formed with offsets just equal in height to the space occupied by the folded seats, and the backs of the seats, being turned down flat, form practically a continuation of the floor, and can be walked over or danced upon without injury.

The accompanying drawings form a part of the specification, and represent what I consider the best means of carrying out the invention.

Figure 1 is an elevation of the device applied, showing the floor in which it is placed in section and the seat elevated. Fig. 2 is an elevation of the seat when closed. Fig. 3 is a plan showing the back of the seat down, forming a part of the floor. Fig. 4 is a detail of a part. Fig. 5 is an elevation, showing the floor in which the seats are placed formed with offsets.

Similar letters of reference indicate corresponding parts in all the figures.

A is the floor, and *a* sunk spaces therein of a width a little greater than of a seat. The

offset at each edge of the sunk space is marked *a'*. *A' A'* are smooth straight posts or rigid uprights, sufficiently high and stiff to serve as guides for B, which are rising and sinking seats formed with eyes *B'*, which embrace the posts *A'* and slide up and down thereon.

C' C' are links, pivoted together and to the back edge of the seat, and to corresponding points in the floor.

D' D' are corresponding links pivoted together, and connected movably to the seats and to mechanism in the floor.

E' are pivots which connect the links *C' D'* and *E'* are pivots which connect the links *C' D'*. The upper ends of the links *D'* carry short cross-pins *d'*, which slide in T-shaped grooves extending forward and back in the under face of the seats. The lower ends, *d''*, of the links *D'* are forked and sit astride of horizontal rods *G*, carrying fixed collars *G'*, which are moved endwise in grooves or channels in the floor, being controlled by arms *H'* from a rocking shaft, *H*, fitted in the floor, and controlled by a stout hand-lever, *M*, applied in a socket, *H'*.

I I are backs hinged to the seats *B* in the obvious manner. Each back *I* is provided with a pin, *i*, at each side, which is embraced in a slot in a link, *J*, which is connected by a pivot, *j*, to a link, *K*, the lower end of which is pivoted to the seat. A further link, *L*, extends from the pivot *j* to a pivot, *l*, set in a carefully-selected point on the corresponding link *C'*. The back *I* is in effect, when the seat is to be lowered to the level of the floor, a part of the lazy-tongs, and is operated thereby. When said lazy-tongs are drawn down their action upon the back *I* through the parts *L K J* is to bring it down upon the folded tongs, forming a covering to the aperture *a*.

Operation: When it is desired to lower the seats, the attendant, taking a firm hold on the lever *M* and disengaging it from the holding-notch in the notched guard *O*, moves it in the direction to relax the strain on horizontal rods *G* and allow the seats to lower a little. After waiting a few seconds in that position to allow any delinquent to rise, he turns the lever farther and moves the seats down into their folded condition, having their backs *I* flush with the floor adjacent. Thus conditioned, the whole floor is made available for walking, the only obstructions being the posts *A'*. In effecting

this the gravity of the seats and the connections aids the movement. It is easy for one man to lower a large number of seats by a single movement of the lever.

5 When it is desired to raise the seats the attendant moves the lever M in the opposite direction. This movement may be effected at leisure at any time previous to filling the house. This movement may be facilitated by attendants lifting a considerable number of the seats. 10 When the seats are fully raised the lever M is again engaged in the proper notch in the arc or curved bar. When this operation has been repeated with all the seats the hall or room 15 is ready for the reception of the audience.

I can divide the seats on a floor into as many sections as shall be found expedient, each operated by a separate lever and connections. I propose in most cases to connect an entire series from the front to the rear of the building 20 by one set of rods, G, and operate the whole by one rock-shaft, H. It will be understood that the lever M can be removed when required.

25 The object of the slot in the link J is to allow the pin i to traverse sufficiently independent of the link to attain the proper inclination when in use and to fold quite down when depressed.

30 The collars G' have a rounded face, which is presented toward the link D². The nature of the connection by means of the fork d² allows for the accidental holding up of a seat in any case by any object, as a bundle under the same.

35 The mechanism should work so easily that every seat will sink by its own gravity as soon as the shaft H is rocked and the rods G move. The gravity will keep the fork d² in contact with the collar G'; but if, for any reason, a seat should be held up, the connection allows the 40 rods G to move and all the other seats to sink without obstruction.

5 Modifications may be made in many of the details without sacrificing the advantages of the invention. I can unite the lever M and the arm or socket H' permanently, or form the whole in a single rigid lever. I can vary the length and thickness of the seats and backs.

One modification to which I attach some importance is to dispense with the permanent standing posts, and substitute in lieu thereof 50 corresponding bars permanently attached to the seat and sinking loosely through holes in the floor as the seats rise and sink. This modification leaves a clear floor, and is particularly important in adapting my invention to 55 halls which will be sometimes used for dancing; but I prefer for ordinary purposes the construction shown, as it will hold the seats somewhat more firmly against any horizontal movements. 60

A modification to which I attach much importance is shown in Fig. 5, where the floor is made to rise gradually, so that each seat is a little higher than the one before it. The special depression made for my seat is not re- 65 quired; but I esteem it important that the thickness of the seats and their connections be such that when the seats are lowered the backs will be just flush with the floor in the rear thereof.

I claim as my invention— 70

1. The seat B, in combination with mechanism for raising and lowering the same, the rod G, and a lever or operating-bar, M, whereby the seat may be raised or lowered by an attendant at a distant point, as herein specified. 75

2. The hinged back I and links J K L, in combination with the seat B and pivoted levers C' C² D' D², whereby the back is folded when the seat is lowered.

3. The lever M, shaft H, arms H², rods G, 80 and sets of links C' C² D' D², in combination with the seats B and backs I, hinged together, whereby many seats are lowered by a single movement of the lever, as herein specified.

In testimony whereof I have hereunto set 85 my hand at New York city, this 20th day of May, 1881, in the presence of two subscribing witnesses.

EDWARD F. UNDERHILL.

Witnesses:

F. M. ADAMS,
E. D. STAFFORD.