June 1, 1926.

1,587,216

J. W. COLLINS

AUTOMATIC SEAT RAISER

Filed Sept. 21, 1925

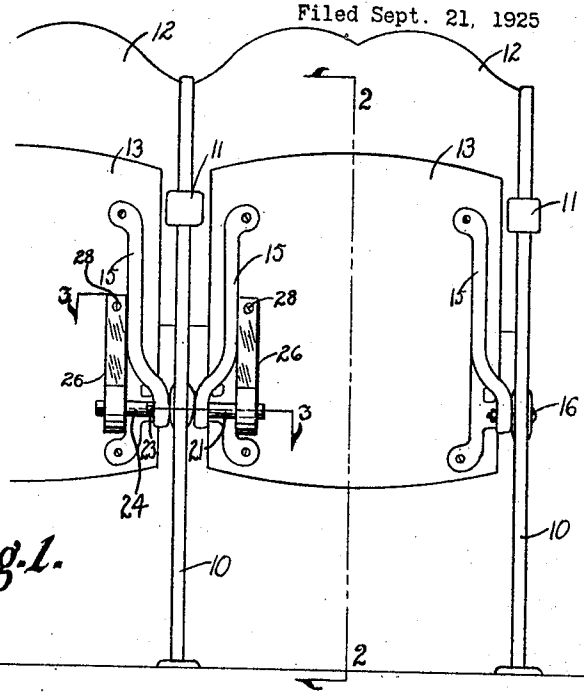


Fig. 1.

Fig. 4.

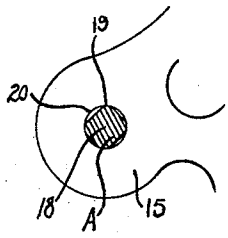


Fig. 3.

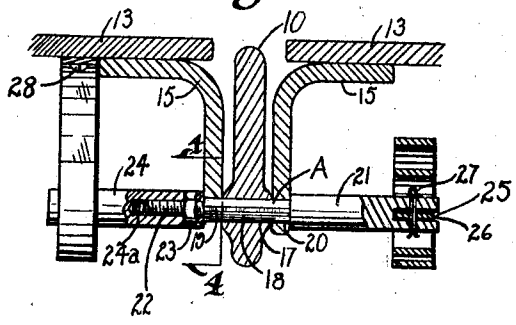
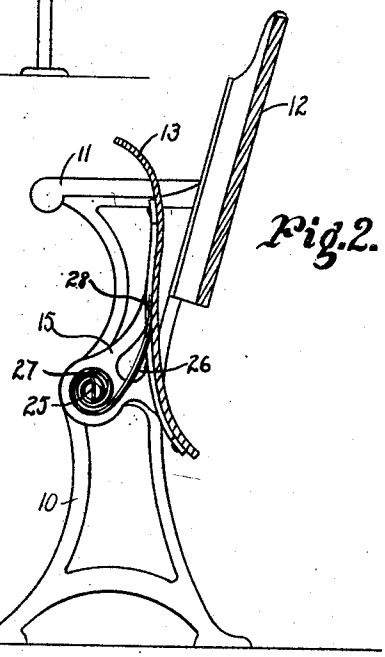


Fig. 2.



Witness

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UNITED STATES PATENT OFFICE.

JOHN W. COLLINS, OF FORT DODGE, IOWA.

AUTOMATIC SEAT RAISER.

Application filed September 21, 1925. Serial No. 57,566.

The object of my invention is to provide an automatic seat raiser for yieldingly raising the seat portions of theater and school chairs and the like, when they are not in use.

More particularly, it is my object to provide a seat raiser for theater and school seats and the like of very simple and inexpensive construction, which can be used as an attachment on ordinary seats.

Another object of my invention is to provide such a device, which can be used as an attachment with a minimum modification of the ordinary seat structure and in which two seats may be provided at a time with substantially the same equipment.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my automatic seat raiser, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:—

Figure 1 shows a front elevation of a pair of chairs equipped with seat raisers of the type embodying my invention.

Figure 2 is a vertical, sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a detail, sectional view taken on the line 3—3 of Figure 1; and

Figure 4 is a sectional view taken on the line 4—4 of Figure 3.

In the accompanying drawings, I have illustrated my invention as applied to an ordinary standard type of chair. These chairs are usually provided with supports or legs of bracket form indicated in the accompanying drawing by the reference character 10, having the arm rests 11.

Supported between each adjacent pair of supports 10 is the back 12.

The seats are arranged in series so that except at the ends of a row, each support 10 supports half of two seats and two backs. This is, of course, for the sake of economy.

Between each successive pair of supports 10, there is pivoted a seat 13 by means of brackets 15 fastened to the underside of the seat and pivoted to the support 10 by means of a spindle or the like 16.

The spindle for the end support 10 is, of course, shorter than the spindle for the supports 10, which are arranged between two successive seats.

Where my improved automatic seat raiser is used, I remove the spindle between two adjacent seats and ream the hole therefor in the member 10 until it is angular in cross section as indicated at 17 in Figure 3.

I then provide a heavy rod or the like, having a central portion 18, angular in cross section to non-rotatably fit in the hole 17. The bolt or rod or the like, I have indicated generally by the character A.

The portion 18 of the bolt A is preferably rectangular in cross section with the corners rounded as indicated at 19 in Figure 4. The portion 18 is long enough to project in both directions from the support 10 and to be received in the round holes 20 in the brackets 15. The brackets 15 can thus rotate on the rounded corners of the portion 18.

One end of the bolt A is formed with a slightly enlarged, cylindrical portion 21. The other end is formed with a reduced screw-threaded portion 22.

In the outer end of the portion 21 is a slot 25. A nut 23 is screwed onto the portion 22 adjacent to the shoulder formed at the inner end thereof.

A cylindrical member 24 similar to the portion 21 is provided with a screw-threaded opening 24ª and screwed onto the portion 22 against the nut 23.

The outer end of the member 24 has a slot 25 similar to that in the portion 21.

One end of a flat spring 26 is inserted in each slot 25. The spring 26 is wound around the right-hand end of the device anticlockwise when viewed from the outer end of the cylindrical member 21 and is then extended to and fastened under the central portion of the adjacent seat 13, as shown in Figure 2.

The other spring is wound clockwise on the member 24, when the latter is viewed from its free end, and is then extended under and secured to the under surface of the adjacent seat 13 near its central part by screws or the like 28.

It will thus be seen that the tendency of the left-hand spring 26 to unwind will cause the seat to be raised. The tension of the spring will also tend to hold the member 24 tightly screwed on to the screw-threaded portion 22 of the bolt A.

The ends of the springs are held against accidental removal from the slots by means of cotter pins or the like 23 inserted through the ends of the portion 21 and through the member 24 respectively and through the ends of the springs.

An important feature of my improved device is its extreme simplicity.

I take out one spindle or bolt or short shaft and insert one bolt in its place, putting on one nut, one cylindrical member 24, putting in two springs, two cotter pins 27, and two screws 28, for equipping two seats with the device.

My structure can be put on as an attachment.

The only modification of the ordinary seat structure is that involved in reaming out the hole 17 to give it its angular shape.

When the device is installed, each seat 13 tends normally under spring tension to assume its position shown in Figures 1 and 2 and yet it is not difficult to swing the seat down to position for use.

The advantages of a device of this kind are numerous.

A place of public assembly can be cleared of its occupants much more rapidly where the seats automatically raise. This has been found to be true as a matter of actual test and is of especially vital importance in places where fires or panics are of possible occurrence.

It is also true that ushers can seat a crowd much more quickly, if the seats can be raised automatically.

The automatic raising feature is also of considerable advantage to the janitors in cleaning a building where the seats are installed.

I claim as my invention:—

1. In a device of the class described, the combination of a plurality of seat supports, seats pivoted to said supports, the pivot means comprising a bolt received in each support non-rotatably, brackets mounted on said bolts at opposite sides of each seat support, an enlarged extension on one end of each bolt, a reduced screw-threaded extension at the other end of each bolt, a nut on each screw-threaded extension for holding the bolt in the support, a member screwed onto each said screw-threaded extension for holding the bolt in the support, each said enlarged extension and each said last-described member having a slot in its end, flat springs having their ends received in said slots and being coiled around the member and extension having the slots and secured to the seats.

2. In a device of the class described, the combination of a plurality of seat supports, seats pivoted to said supports, the pivot means comprising bolts non-rotatably and non-slidably received in the support, brackets rotatably mounted on said bolts at opposite sides of each seat support and secured to the seats, slots in the ends of the bolts, and flat springs having their ends received in said slots and being coiled around the bolts and secured to the seats.

3. In a device of the class described, the combination of a plurality of seat supports, seats pivoted to said supports, the pivot means comprising a bolt received in the support non-rotatably, brackets rotatably mounted on said bolts at opposite sides of each seat support, an enlarged extension on one end of said bolt, a reduced screw-threaded extension on the other end of the bolt, a nut on the screw-threaded extension for holding the bolt in the support, a member screwed onto said screw-threaded extension, springs having coils secured to said enlarged extension and to said last member, and portions secured to the seats.

Des Moines, Iowa, July 18, 1925.

JOHN W. COLLINS.