

Nov. 11, 1930.

F. B. FITZPATRICK
MOVABLE BLEACHER

1,781,058

Filed July 20, 1929

3 Sheets-Sheet 1

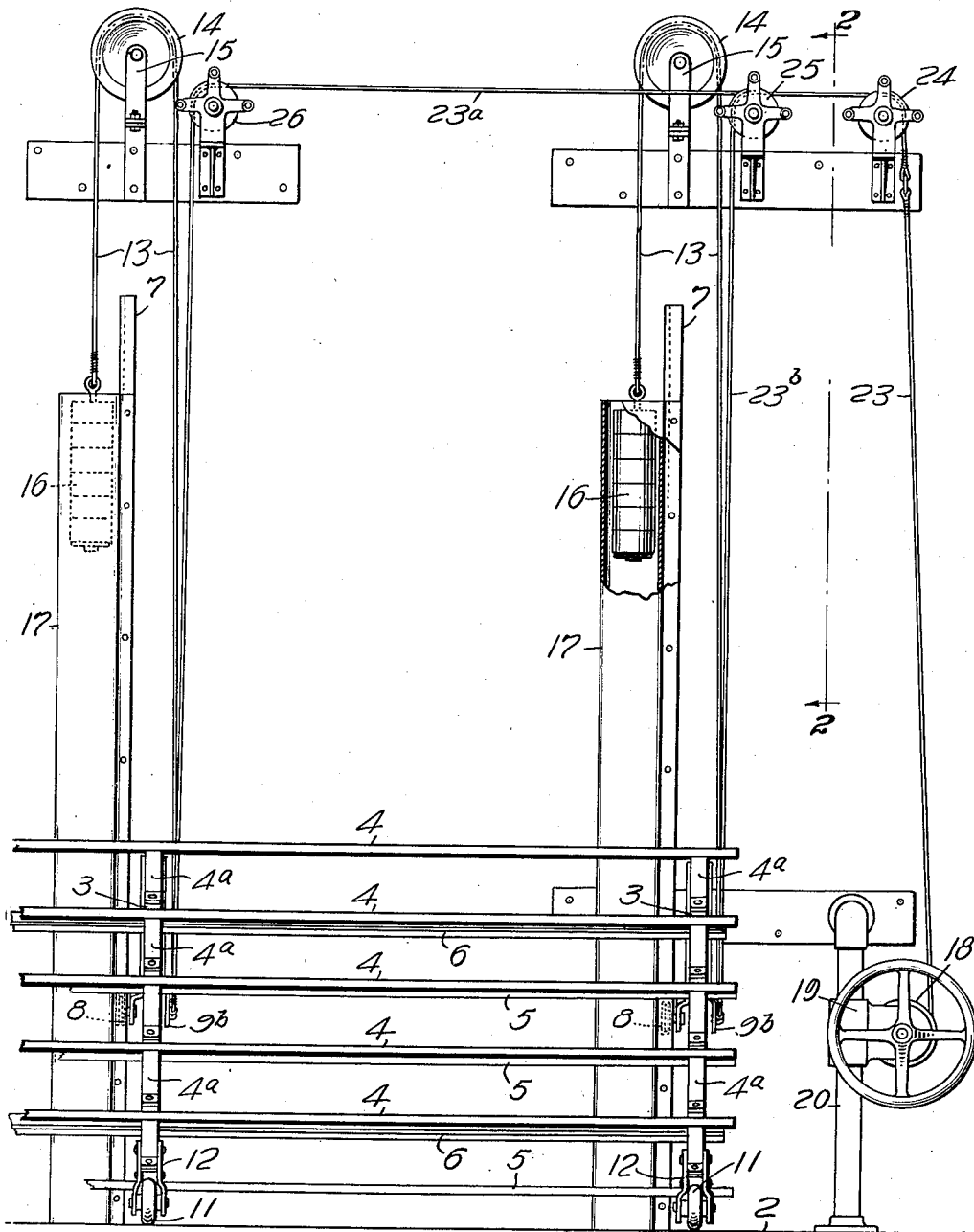


Fig. 1.

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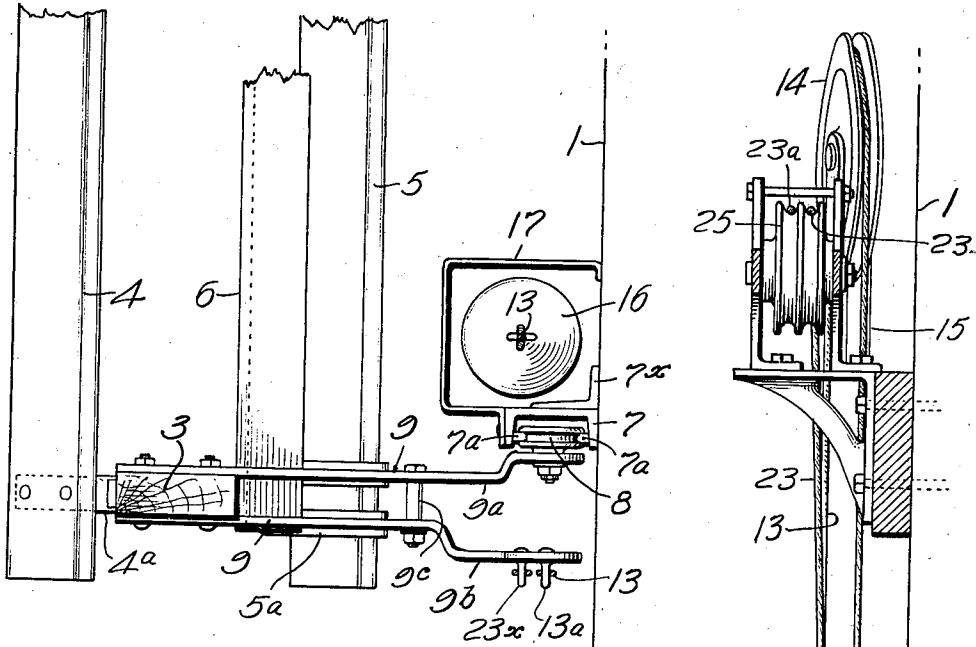


Fig. 3.

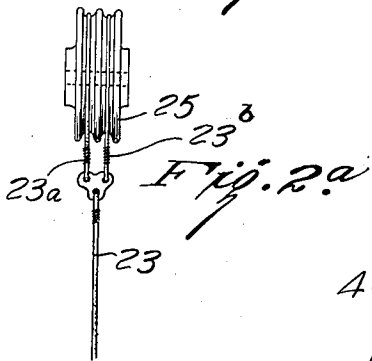
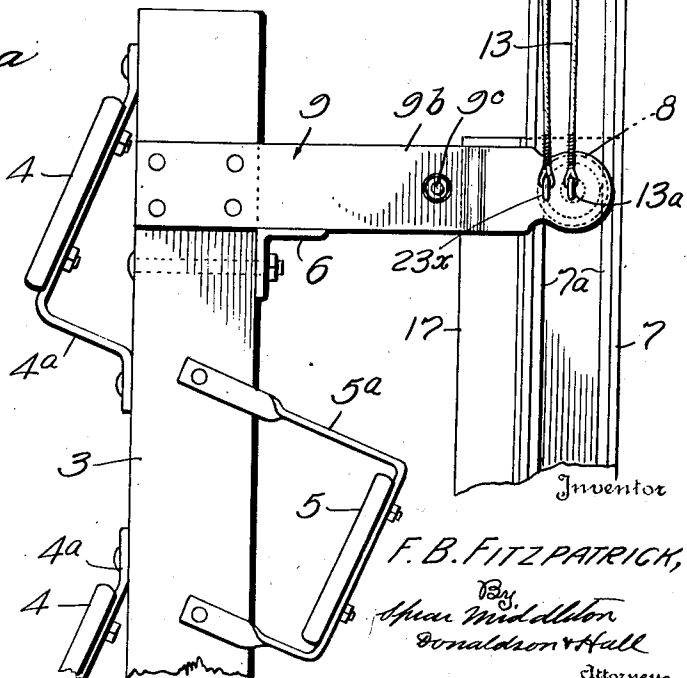


Fig. 2a.

Fig. 2.



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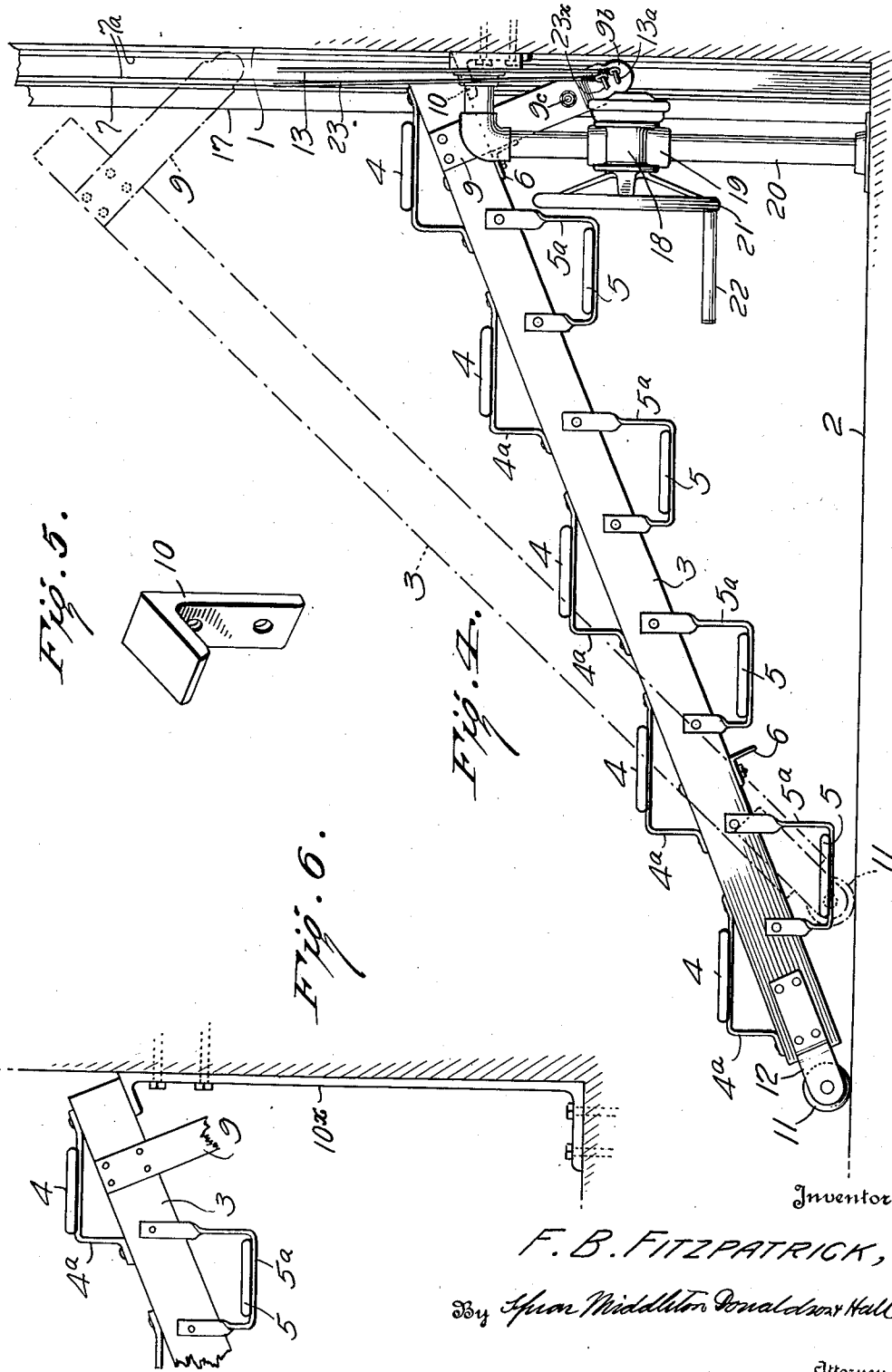
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3 Sheets-Sheet 3



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MOVABLE BLEACHER

Application filed July 20, 1929. Serial No. 379,791.

My said invention relates to improvements in seating devices or grand stands for spectators of the type generally known as bleachers and more particularly of the kind adapted for indoor audiences as for instance in gymnasiums and analogous places.

The invention aims to provide a seating device which, when not in use, may be lined up against the wall of the gymnasium, room or auditorium in which it is located so as to be out of the way, and to leave practically the entire room available for normal use at such times.

The invention further aims to provide a device or apparatus which will be strong and durable, capable of being easily manipulated, and which when in position for holding spectators, will be supported in such manner as to be incapable of falling or collapsing.

With these and other objects in view, the invention includes the novel features of construction and arrangement and combination of parts hereinafter described, the invention being defined by the claims appended hereto.

What I at present consider the preferred embodiment of the invention is illustrated in the accompanying drawings in which:

Figure 1 is a front elevation of a sufficient portion of a grand stand or bleacher section to illustrate the invention.

Fig. 2 is an enlarged sectional detail on line 2—2 of Fig. 1 showing the upper end of said section in its elevated position and the counter balancing and elevating cables and guide pulleys therefor.

Fig. 2^a is a detail of cable connection.

Fig. 3 is a plan view of parts shown in Fig. 2.

Fig. 4 is an end view.

Fig. 5 is a detail view showing one form of supporting bracket, and

Fig. 6 is a detail view showing a modified form of bracket.

Referring by reference characters to these drawings, the numeral 1 designates one of the walls of the room for which my invention is designed and 2 the floor, these being shown in part and in a conventional manner. 3, 3, etc., designate the main or seat carrying members or stringers to which the seats 4 and

foot rests 5 are connected by suitable bracket irons designated 4^a and 5^a respectively. In addition to the connection afforded by the seats and foot rests, the members 3 are rigidly tied together by cross bars 6 which may be in the form of angle bars bolted or otherwise secured to the stringers 3, the whole forming a rigid seat carrying frame.

7 designates channel guides secured to the wall 1 in vertical position and parallel to each other by angle brackets 7^x, these guides being provided with opposed rails 7^a which are engaged by rollers 8 carried by bracket arms 9 bolted or otherwise secured to the stringers at the upper ends, or certain of them. Preferably, the bracket arms 9 are in the shape of parallel metal bars 9^a and 9^b bolted to opposite sides of the respective stringers 3, the bracket arm 9^a carrying roller 8 grooved to receive the rails 7^a and be compelled thereby to travel in a vertical path, the arms 9^a and 9^b being secured together adjacent their free ends as indicated at 9^c.

By this arrangement, the end of the stand or bleacher section adjacent the wall may be elevated and its lower end thereby drawn toward the wall until the stand is in a vertical position and parallel to and juxtaposed against or adjacent the wall, or may be lowered into seating position at which time the upper ends of the stringers are supported by brackets 10 secured firmly to the wall.

To facilitate movement of the lower ends of the stringers on the floor, they are provided with rollers 11 journaled in brackets 12 bolted to the lower ends of the stringers.

In order to facilitate the raising and lowering of the bleachers, cables 13 are attached to eye bolts 13^a on the arm bars 9^b, such cables passing over pulleys 14 journaled on brackets 15 fast to the wall and having their other ends attached to counter weights 16 working in weight boxes 17, secured to track members 7.

For effecting the raising and lowering of the bleachers, I provide a drum cable winch comprising a drum 18 fast on a shaft journaled in a bracket 19 carried by a post 20, such drum shaft being provided with oper-

ating means such as wheel 21. A hoist cable 23 has one end attached to the drum and its other end to a coupling, Fig. 2^a, from which leads two branch cables passing over a pulley (or pulleys) 24, one branch cable 23^b passing over pulley 25 and thence down to eye bolt 23^c on bar 9^b at the near end of the bleacher section, while the other branch cable 23^a passes over pulleys 25 and 26 and connects with a similar eye bolt on another stringer.

The bleachers may be made in sections each provided with its own counterweight and operating means, or may comprise a single section with as many counterweights:

Where wall conditions are such as to make necessary, the brackets 10 may be extended to the floor as indicated at 10^c, Fig. 6.

I claim:

1. Folding bleachers comprising vertical guides, a bleacher frame comprising rigidly connected stringers, seat members carried by said stringers arranged in stepped relation thereon, means slidably connecting one end of said frame to said guides, and means for rigidly supporting said slidably connected end at a distance from the floor to cause said seat members to lie in substantially horizontal position.

2. Folding bleachers comprising vertical guides, a bleacher frame comprising rigidly connected stringers, seat and foot rest members disposed respectively above and below said stringers in staggered and angular relation thereto, means slidably connecting one end of the frame to said vertical guides, means for raising and lowering said slidably connected end of the frame, and means for limiting the downward movement of said slidably connected end whereby said end is rigidly supported to maintain the seats and foot rests in a horizontal plane when in such lowered position.

3. In a folding bleacher construction, the combination with a plurality of wall attached, channel shaped guides having rails on the opposing faces thereof, of a seat carrying frame comprising a plurality of stringers supporting seats and steps in a substantially horizontal plane when in operative position, said stringers having yokes at their upper ends connecting said frame to said guides by means of grooved rollers cooperating therewith, said frame having roller floor engaging means at its lower end, and a winding device for raising and lowering the upper end of said seat carrying frame.

4. Folding bleachers comprising wall attached guides, a bleacher frame comprising rigidly connected stringers, seats and foot rests carried by said stringers in staggered and angular relation thereto, means slidably connecting said stringers to said guides, means for raising and lowering the upper end of said frame, roller floor engaging means

at the lower end thereof, and rigid bracket means for supporting said slidably connected end from the floor whereby the seats are maintained in a plane substantially parallel to the floor, when in operative position.

5. Folding bleachers comprising vertical wall attached guides, a bleacher frame comprising rigidly connected stringers, seats and foot rests carried by said stringers in staggered and angular relation thereto, means slidably connecting said stringers to said guides, means for raising and lowering the upper end of said frame, counterbalancing means for said upper end, roller floor-engaging means for the lower end thereof, and rigid, wall attached bracket means for supporting said frame in its lowered position, whereby the seats and foot rests are maintained in a substantially horizontal position.

In testimony whereof, I affix my signature.

FRANK B. FITZPATRICK.