Oct. 5, 1943. R. S. TURNER 2,331,060

SEAT OR CHAIR SECURING MEANS

Filed June 9, 1942

Fig. 1

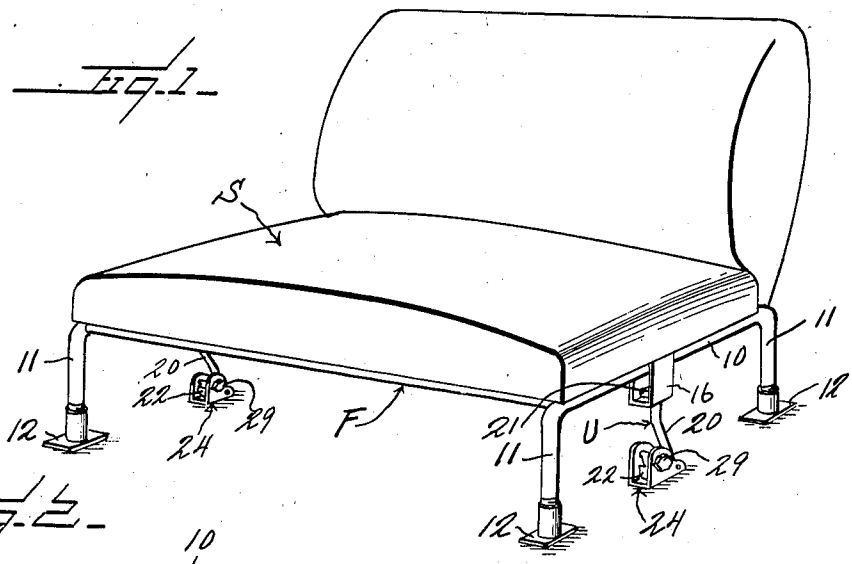


Fig. 2

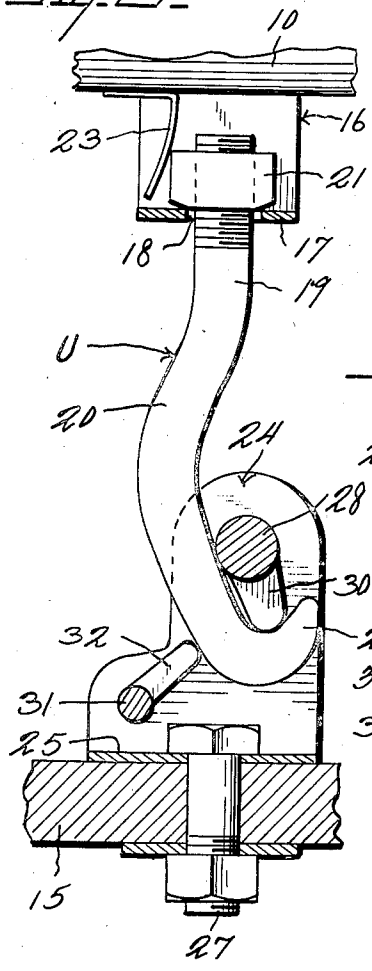


Fig. 3

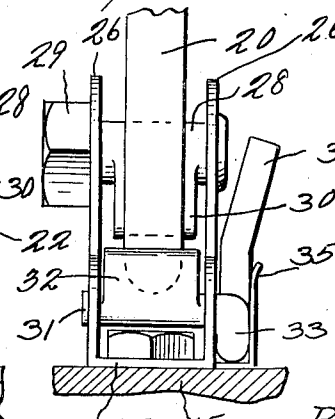


Fig. 5

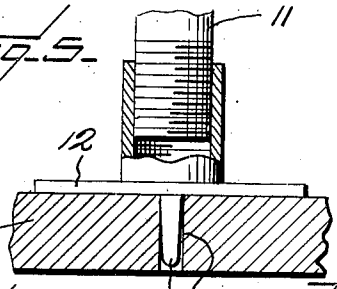
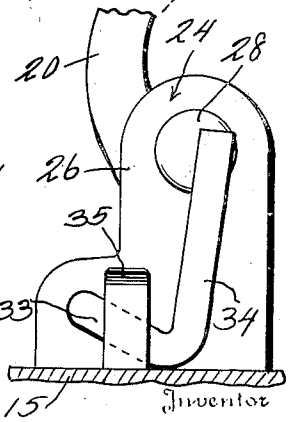


Fig. 4



Inventor

Robert S. Turner

By Coleman & Lawson

Attorneys

Patented Oct. 5, 1943 2,331,060

UNITED STATES PATENT OFFICE

2,331,060

SEAT OR CHAIR SECURING MEANS

Robert S. Turner, Oklahoma City, Okla.

Application June 9, 1942, Serial No. 446,373

6 Claims. (Cl. 45—137.6)

This invention relates generally to the class of chairs, and pertains particularly to improvements in means for securing chairs or seats to the floor or other support.

The present invention is directed primarily to an improved means for securing in place the seats used in buses, train coaches or the like but may be readily employed in other locations, as in theaters or auditoriums, or for single or individual seats wherever it is desirable that the same be fastened againsct unauthorized removal.

For the purpose of properly cleaning buses and train coaches or other places used by the public and where chairs or seats must be provided and secured in position, it is very difficult to thoroughly clean the buses, coaches or other places without removing the seats. At the present time the chairs or seats of buses and train coaches, airplanes, and other vehicles are secured to the floor by bolts and screws and when it is necessary to remove and replace such seats, considerable time and labor is involved, it being necessary to employ the services of at least two men to do the job.

The principal object of the present invention, in view of the foregoing, is to provide an improved method or means of securing the seats or chairs used in buses, train coaches, airplanes or other structures, to the supporting floor in such a way that the securing means may be easily and quickly released or established as necessary so that the removal or replacement of such seats may be accomplished with the minimum of effort and very quickly.

Another object of the invention is to provide a chair or seat securing means which will firmly draw the chair down to solid engagement with the supporting floor, and which may be easily and quickly locked or unlocked as desired, so that jarring and vibration will not result in the loosening of the locking connection between the seat and the floor.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing, it being understood, however, that the invention is not to be considered as limited by the specific illustration or description but that such illustration and description constitute a preferred embodiment of the invention.

In the drawing:

Figure 1 is a perspective view of a seat showing the application thereto of the securing means constituting the present invention.

Figure 2 is a vertical section of the securing means per se, on an enlarged scale.

Figure 3 is a front elevation of the lower part of the securing means.

Figure 4 is a view in elevation of one side of the part shown in Figure 3.

Figure 5 is a detail view, partly in section, of the foot of one leg.

Referring now more particularly to the drawing the reference character S generally designates a seat or chair structure such as may be found in a bus or train coach and which is customarily supported upon a frame structure F, which includes the end rails 10 which are formed integrally with the supporting legs 11.

In accordance with the present invention the legs 11 are attached to foot plates 12, each of which has extending downwardly from its under face the positioning pin 13 which engages a suitable aperture 14 in the floor 15. While these positioning pins are not essential to the proper operation of the seat securing means or to its placement, they do facilitate replacing the seats since the seats will automatically assume the proper position for the operation of the securing means as soon as the pins are placed in the respective floor holes 14.

Each of the frame rails 10 is anchored to the floor by the securing or anchoring unit U and this unit is in two main portions, the upper one of which is connected with the rails 10 while the lower one is secured to the floor.

The upper portion of the anchoring unit comprises a substantially U-shaped yoke or hanger 16, the web portion 17 of which is provided with an aperture 18 through which extends the straight upper end portion 19 of the shank 20 of a hook, which shank is longitudinally bowed throughout the major portion of its length, as is clearly shown in Figure 2. The straight portion 19 of the hook shank is threaded to receive the nut 21 which rests upon the web 17 within the yoke.

At the lower end of the shank 20 there is formed the hook 22, the bill of which is directed upwardly and is preferably disposed upon the side of the shank which is directed toward the front of the seat. By providing the elongated bow in the shank 20 the bight of the hook is located substantially in line with the threaded straight portion 19 of the shank when the hook is hanging free.

Within the yoke 16 there is disposed the spring tongue 23 which is secured to the frame rail 10 or to any other suitable fixed part of the struc-

ture, and bears against the nut 21, thus tending to hold the hook against free swinging, thereby maintaining it in position to be readily engaged by the lower portion of the anchor in the manner hereinafter described. The lower part of the nut 21 is rounded upon the front and rear corners or edges so that a forced swinging of the hook and shank is facilitated against the holding action of the spring 23.

The lower or floor portion of the anchor unit comprises a bracket, indicated generally by the numeral 24, which has the bottom portion 25 and the spaced parallel upstanding or side portions or plates 26. The bottom portion 25 of the bracket is secured to the floor 15 by a bolt 27, as shown, or by any other suitable means.

Extending across the space between and supported by the side portions 26 of the bracket 24 is a rock shaft 28 which, at one end, carries upon the outer side of the adjacent plate 26 the head 29 of polygonal outline designed to be grasped by a wrench or other suitable tool. Between the plates 26 the rock shaft 28 carries a rigid tongue 30.

The bracket 24 is secured to the floor between the pin receiving openings 14 in such postion that when the chair is put into place the bight portion of the hook 22 will be below and slightly rearwardly of the vertical plane in which the axis of the shaft 28 lies. Thus, when the rock shaft 28 is rotated so as to swing the tongue 30 against the adjacent side of the shank 20, such tongue will move into the bottom of the bight of the hook and push down against the hook and cause the latter to swing under and to the opposite side of the axis of the shaft 28. The tongue 30 will thus exert a downward pull on the hook and at the same time oscillate the hook so as to bring the shank against the side of the shaft 28 and move the point of the hook bill under and beyond the other side of the shaft, thereby establishing an off-center strain between the hook and the end of the tongue.

At an elevation below the lowest part of the hook 22 and offset from the vertical plane in which the axis of the shaft 28 lies, there is supported between the side plates 26 of the bracket the latch bar 31 which carries a latching finger 32 which is designed to be brought into contact with the back of the hook after the latter has been secured by the tongue 30 in the manner illustrated and described and form a wedge against the hook which prevents it from swinging back to its initial position and becoming disconnected from the locking tongue 30. One end of the bar 31 extends beyond the outer side of a plate 26 and joins an end of an operating lever which has a short angular portion 33 and a longer handle portion 34, said portions being angularly related so that when the longer portion 34 is extending upwardly the shorter portion 33 will be extended down toward the floor and obliquely thereto. This operating portion or lever made up of the two parts 33—34 is forced between an upstanding spring tongue 35 and the outer side of the adjacent plate 26. By this means the lever is held against accidental turning.

From the foregoing it will be readily apparent that the device herein described provides a novel and easily manipulated means for firmly securing a chair or seat to the floor or other supporting surface and, due to the novel construction the parts will remain firmly coupled together and cannot become loosened or accidentally disconnected by vibration, jars or other means than the positive application of force to the shaft 28 to rock the same after the latch bar has been turned to remove the latching finger from position against the back of the hook.

I claim:

1. Means for coupling together two superposed bodies, comprising a hook having a relatively long shank, means pivotally coupling the end of the hook shank with the uppermost one of said bodies whereby the hook hangs downwardly therefrom, a bracket member secured to the lowermost one of the pair of bodies and having a pair of spaced upstanding side portions, the bracket being disposed beneath the hook, a shaft extending between and supported by the spaced portions of the bracket, transversely of the shank and at an elevation above the hook, a locking tongue carried by the shaft and adapted upon rotation of the shaft in one direction to swing downwardly toward the hook shank and into the hook to bear against the hook and exert longitudinal strain upon the shank, said tongue effecting the oscillation of the hook transversely of the shaft between the latter and the lowermost one of the bodies, said shank being longitudinally bowed to facilitate movement of the hook beneath and across the shaft, and means for securing the hook against reverse oscillation.

2. A coupling means as set forth in claim 1, in which the hook securing means comprises a bar rockably supported between the side members of the bracket and disposed at an elevation between the shaft and the lowermost member, and a finger carried by the bar and adapted upon oscillation of the bar in one direction to engage the hook upon the side thereof opposite from the shaft and tongue.

3. Means for securing a chair, seat or the like to a floor comprising a yoke member secured to the under side of the seat, a hook having a relatively long shank, means pivotally coupling the ends of the shank to the yoke, a bracket adapted to be secured to the floor beneath said yoke and having a pair of upstanding side members between which the hook positions, a shaft rotatably supported between said side members and across the shank of the hook in close proximity to the shank and between the hook and the yoke, a locking tongue carried by the shaft and adapted upon oscillation of the shaft in one direction to move toward the shank and downwardly into the hook and engage the hook to exert longitudinal strain upon the shank, said hook shank being longitudinally bowed to facilitate the swinging of the hook across and between the shaft and the floor to a position where the locking tongue is directed obliquely downwardly away from the hook shank.

4. A seat securing means as set forth in claim 3, including a locking means for the hook which comprises a bar rockably supported between the side members of the bracket at an elevation between the shaft and the floor and to one side of the vertical plane of the shaft, and a finger carried by the bar to be interposed between the bar and the hook upon the side of the hook remote from the shaft.

5. Means for securing to a supporting floor a chair, seat or the like having supporting legs and a rail connecting between the legs, comprising position locating pins carried at the lower ends of the legs for engagement in apertures in the floor, a bracket member secured to the floor between the legs and having a pair of upstanding

side portions, a yoke secured to said rail above the bracket member, a hook having an elongated shank, pivotal means connecting the upper end of the shank with the yoke whereby the hook hangs downwardly between said portions of the bracket, resilient means carried by the yoke and having operative connection with the hook shank for maintaining the shank yieldably in a predetermined position with respect to the bracket, a shaft rotatably supported between the side portions of the bracket and extending across the hook shank between the hook and the yoke, and a locking tongue carried by the shaft and adapted upon rotation of the shaft in one direction to enter the hook and exert longitudinal strain upon the shank and to swing the hook transversely across the shaft between the latter and the floor to a position where the locking finger extends obliquely downwardly away from the shank of the hook.

6. A chair or seat securing means as set forth in claim 5, including a bar rockably supported between the upstanding members of the bracket at an elevation between the shaft and the floor and to one side of the vertical plane of the shaft, means for rocking said bar, and means for yieldably securing the bar rocking means in a predetermined position, and a locking finger carried by the bar and disposed between the bar and the hook to prevent swinging of the hook away from the shaft when the bar rocking means is in said predetermined position.

ROBERT S. TURNER.