

March 5, 1946.

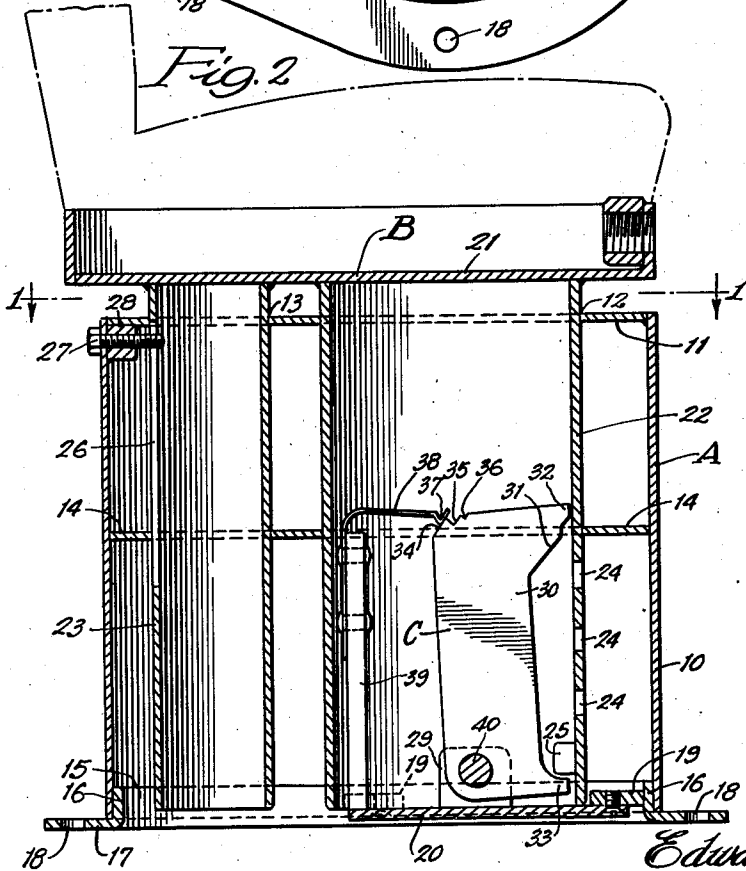
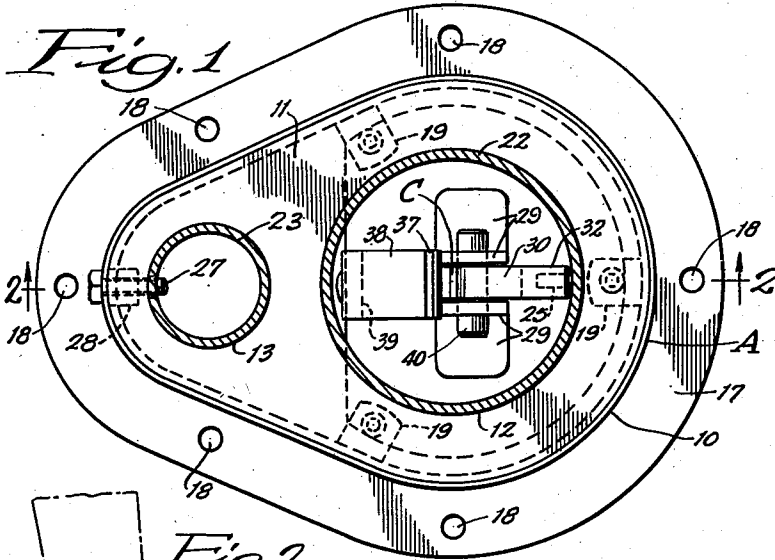
E. SCHMIDT

2,396,022

SEAT

Filed May 22, 1942

2 Sheets-Sheet 1



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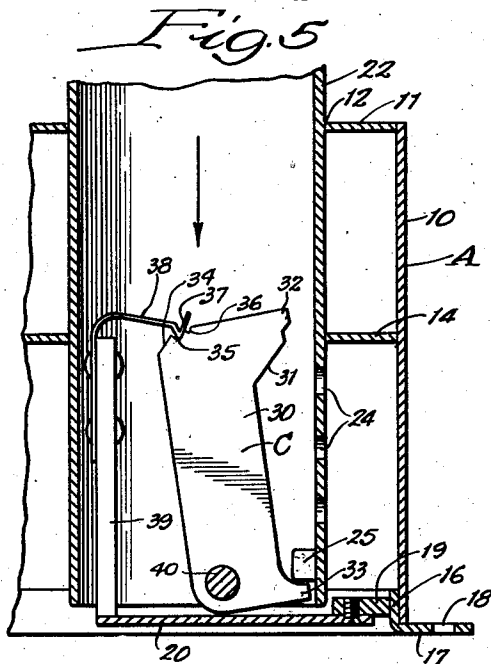
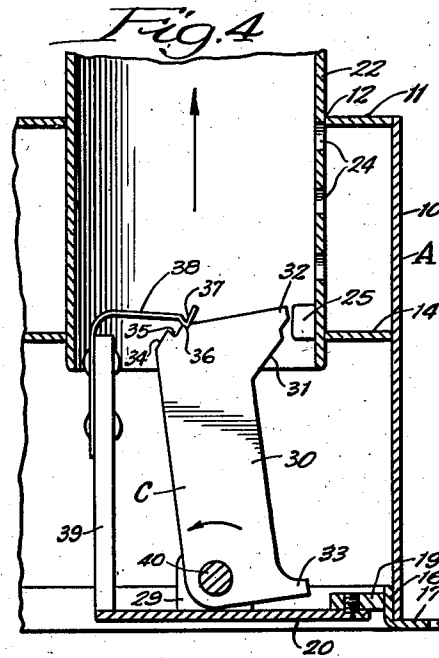
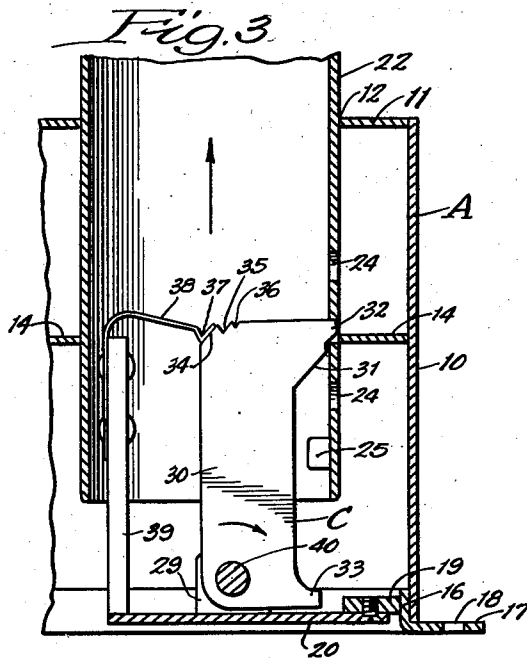
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,396,022

SEAT

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Application May 22, 1942, Serial No. 444,029

5 Claims. (Cl. 155-94)

This invention relates to a seat. It is particularly useful as a driver's seat for use on buses, planes, and other vehicles. It will be obvious that it is adapted to many other uses.

An object of the invention is to provide a simple and sturdy structure, permitting adjustment of the seat upward at spaced elevations while automatically permitting a return of the seat to its lowermost position. A further object is to provide mechanism in which automatic locking means is employed, together with means for rendering the locking means inoperative and for restoring it, when the seat is in a different position, to operative condition. A further object is to provide a structure whereby a ready disassembly of the parts may be accomplished, with the normally interfering portions locked in inoperative position. Other specific objects and advantages will appear as the specification proceeds.

The invention is illustrated in a preferred embodiment, by the accompanying drawings, in which—

Figure 1 is a plan sectional view of apparatus embodying my invention, the section being taken as indicated at line 1 of Fig. 2; Fig. 2, a vertical sectional view, the section being taken as indicated at line 2 of Fig. 1; Fig. 3, a detail vertical sectional view showing the apparatus with the seat tube in partially-raised position; Fig. 4, a similar view but showing the locking means rendered inoperative for the removal of the seat tube or cylinder; and Fig. 5, a view similar to Fig. 4 but showing the locking means being restored to operative condition.

In the illustration given, A designates a base; B, a seat with supporting tubes or cylinders; and C, locking mechanism which may be employed.

The structure A may be of any suitable type or shape. In the illustration given, the casing 10 is of somewhat oval shape, with the top wall 11 thereof provided with two circular openings 12 and 13. Another horizontal plate 14 extends between the vertical wall portions 10 and is secured thereto by welding or other suitable means. Plate 14 is provided with openings aligned with openings 12 and 13. Welded to the lowermost part of the circular member 10 is a base member 15 having an upwardly-extending sleeve 16 engaging the inner side of wall 10 and having a horizontal flange portion 17. The flange 17 is provided with spaced openings 18, through which bolts or other fastening means may be passed to secure the seat base to the floor or other surface. At one side, the sleeve portion 16 is provided with flanges 19, to which is bolted a base plate 20.

The seat B may be of any suitable structure. In view of the great variety of seats which may be employed, it will be unnecessary herein to describe more than a general or illustrative structure. The seat proper is supported by a plate member 21, to which is welded or otherwise secured a large tube member 22 and a smaller tube member 23. The member 22 extends through and is guided by the larger openings in plates 11 and 14, while the smaller tube 23 extends through opening 13 of plate 11 and the corresponding opening in horizontal plate 14. The tube or supporting cylinder 22 may be round, square, or any other suitable shape. In the illustration given, it is provided with spaced openings 24, by means of which the seat may be supported at different elevations, as will be later described. The lower portion of the tube 22 is provided with an inwardly-extending actuating member 25.

The small tube 23 is provided with a slot 26 which receives a stud 27 extending through the wall 10 and through a threaded nut 28. The bolt 27 may be withdrawn to disengage the slot 26.

The locking structure C is designed to permit the lifting of the seat so that the seat may be supported at different elevations while at the same time permitting the seat to be lowered to the lowermost position without interruption by the locking means. Any suitable structure may be employed. In the illustration given, I provide a bracket 29 carried by the base plate 20, and pivotally supported thereon is a locking lever or pawl 30. The lever 30 is provided at its upper end with a cam surface 31 and with a projecting locking tooth 32. The lower portion of the member 30 is provided with a release cam or surface 33 which is adapted to engage the member 25. At the upper rear portion of the member 30 is a cam surface 34, a large locking notch 35, and a smaller locking notch 36. Cooperating with the notches and with the surface 34 is a catch member 37 supported by a spring arm 38. The arm 38 is secured by rivets to a standard 39 fixed to the base plate 20. The pivot, carried by the brackets 29 and upon which the member 30 swings, is indicated by the numeral 40.

Operation

In the operation of the apparatus, the seat may be raised from the lower position, illustrated in Fig. 2, by simply pulling the seat upwardly. As the seat moves upwardly, the topmost opening 24 becomes aligned with the pawl tooth 32, and the tooth is urged into the opening by spring 38. If the driver desires the seat to be placed at

a higher elevation, it is simply pulled upwardly, the lower cam surface of the tooth permitting it to ride out of the opening 24, and in this manner the intermediate opening 24 is brought into alignment with the tooth 32. At this point, the spring 38 urges the tooth into the opening, and the seat is thus supported at the higher elevation. Should the driver desire a still higher elevation, the seat is merely drawn higher until the lowermost opening 24 is aligned with the tooth 32 and, under the urging of spring 38, the tooth 32 engages the lowermost opening. Should the driver now desire to lower the seat, the operation may be accomplished by merely raising the seat higher until the member 25 forces the pawl rearwardly and causes the catch 37 to slide upwardly along the surface 34 into the notch 35. In this position, the spring arm 38 and catch 37 lock the pawl 30 in an inoperative position, and the tube support 22 may then be lowered readily without engaging the locking members. At the lowermost point of its travel, the member 25 is brought into engagement with the lower cam 33 which causes the upper portion of the pawl 30 to swing forwardly and to disengage the latch 37 from the notch 35, thus restoring the parts to the initial position illustrated in Fig. 2. The structure is now ready for a step-by-step elevation to the desired level.

Should it be desired to remove the tube supports 22 and 23 for repair, or to provide access to the working parts within, it is merely necessary to unscrew the bolt 27 to free it from the slot 26 of the guide tube 23 and then to elevate the seat. As the tube 22 raises to the position illustrated in Fig. 4, the actuating lug 25 presses the pawl 30 rearwardly to cause the catch 37 to engage the small forward notch 36. In this position, the member 25 will clear the locking member 30, and the tube 22, after removal, may be readily lowered into the passage within the casing without engaging any obstructions. When the tube 22 is lowered to the position shown in Fig. 2, the lug 25, engaging cam 33, releases the catch 37 from the notch 36 and restores the member 30 to its original starting position.

In all of the foregoing operations, it will be noted that the operation is entirely automatic. All of the different positions described are accomplished by merely raising and lowering the seat plate 21. The structure is rugged, simple, and may be operated reliably over long periods of time without attention. Should repair or servicing of the parts be required, quick accessibility is obtained by simply lifting the seat after bolt 27 has been withdrawn. If bolt 27 is not withdrawn, the engagement thereby with the slot 26 provides a limit to the vertical movement of the tube parts.

While in the structure described, the tube 22 is provided with three openings, it will be understood that any desired number of openings may be employed, and the locking structure may be modified to a wide extent. If desired, the members 22 and 30 may be provided with any suitable cooperating means for providing spaced locking positions by which the seat may be maintained at selected levels.

While the invention has been described in connection with a specific structure, it will be understood that wide variations may be made in the details thereof without departing from the spirit of my invention.

I claim:

1. In a seat structure, a base providing at least

a vertical passage therein, a seat, a tube supporting said seat and slidably received in said passage, a pivotally-mounted locking member carried by said base, said tube being provided with vertically spaced openings adapted to be engaged by said locking member, spring means urging said locking member toward said openings, said locking member having notches, latch means adapted to engage spaced notches on said locking member, and cooperating means carried by said locking member and said tube for causing said latch member to engage selected notches for rendering said locking member inoperative and for freeing said latching member from said notches to render said locking member operative.

2. In a seat structure, a base providing at least a vertical passage therein, a seat, a tube supporting said seat and slidably received in said passage, a pivotally-mounted locking member carried by said base, said tube being provided with vertically spaced openings adapted to be engaged by said locking member, said locking member having notches, spring means urging said locking member toward said openings, latch means adapted to engage spaced notches on said locking member, and cooperating means carried by said locking member and said tube for causing said latch member to engage selected notches for rendering said locking member inoperative and for freeing said latching member from said notches to render said locking member operative, said means including an inwardly-extending lug carried by the lower portion of said tube and cam surfaces at the upper and lower ends of said locking member.

3. In a seat structure, a base providing a vertical passage therein, a seat, at least one tube supporting said seat and slidably received in said passage, a pivotally-mounted locking member carried by said base and provided with a forwardly-extending tooth, said tube being provided with a vertical series of openings adapted to be engaged by said tooth, said locking member being provided also with a cam below said tooth and at its lower side with a release cam, an actuating lug carried by the lower portion of said tube for engaging said cam surfaces, said locking member being provided also at its upper rear side with a notch and adjacent thereto with an inclined surface, and a spring arm supported by said base and provided at its forward end with a catch adapted to engage said inclined surface to urge said tooth toward one of said openings and, when pressed into engagement with said notch, to hold said locking member out of engagement with said notch.

4. In a seat structure, a base providing a pair of vertical passages therein, a seat, a pair of tubes supporting said seat and slidably received in said passages, a pivotally-mounted locking member supported by said base within one of said tubes, said last-mentioned tube having a vertical series of openings therein adapted to be engaged by said locking member, said locking member being provided at its rear side with locking notches and at its forward side with a pair of spaced cams, a spring arm supported by said base and provided with a catch adapted to engage said notches, and an actuating lug carried by the lower portion of said last-mentioned tube for engaging said cams to effect the engagement of said catch with said notches and to effect the release thereof.

5. In a seat structure, a base providing a pair of vertical passages, a seat, a pair of tubes supporting said seat and slidably received in said

passages, one of said tubes being relatively small and the other being relatively large, said small tube being provided with a vertical slot, an adjustable bolt member carried by said base for releasably engaging said slot to limit the vertical movement of said tube, a locking member supported by said base within said large tube, said large tube being provided with a vertical series of openings and said locking member being provided on one side with a pair of locking notches 10

and on the other side with a pair of spaced cams, a spring arm supported by said base and provided with a catch adapted to engage said notches, and an actuating lug carried by the inner side of said tube and adapted to engage one of said cams to cause said catch to engage a selected notch and to engage the other of said cams for effecting release of said latch from said notch.

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