

March 30, 1954

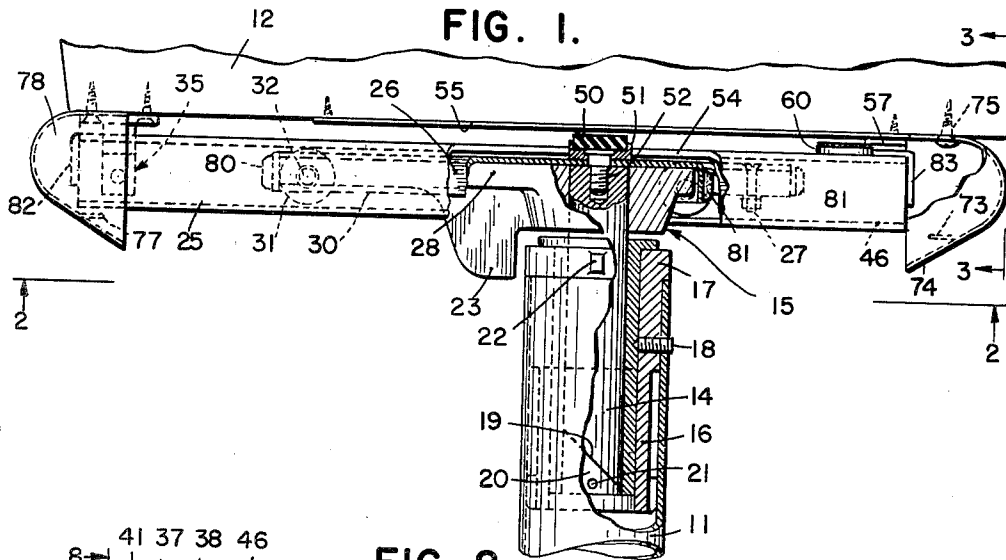
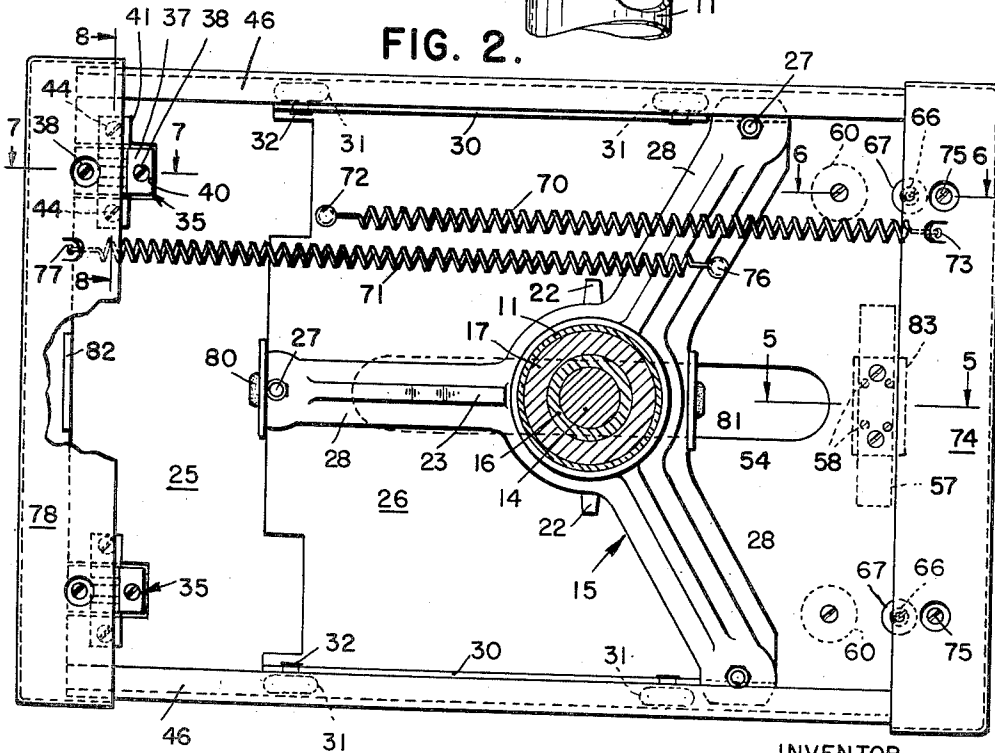
C. F. CAMELLI

2,673,592

HINGED PLATE MOVABLE SEAT CONSTRUCTION

Filed Nov. 25, 1949

4 Sheets-Sheet 1



INVENTOR

CARL F. CAMELLI

BY

Mason & Graham

ATTORNEYS

March 30, 1954

C. F. CARAMELLI

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FIG. 3.

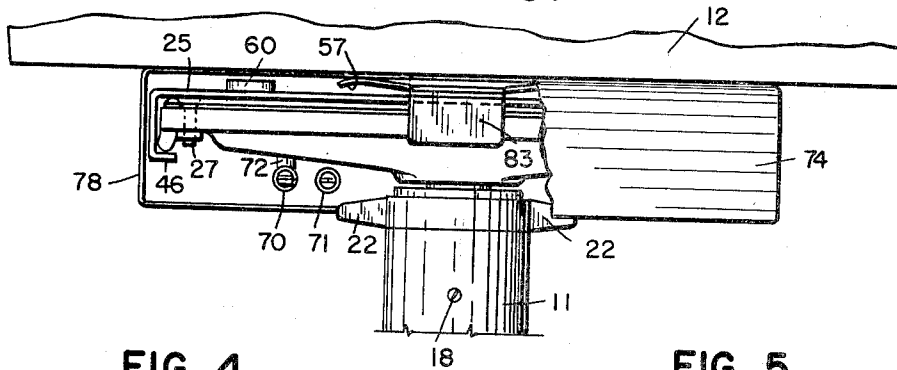


FIG. 4.

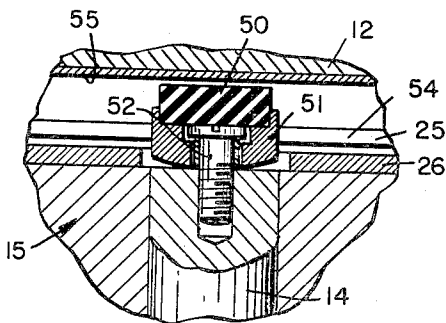


FIG. 5.

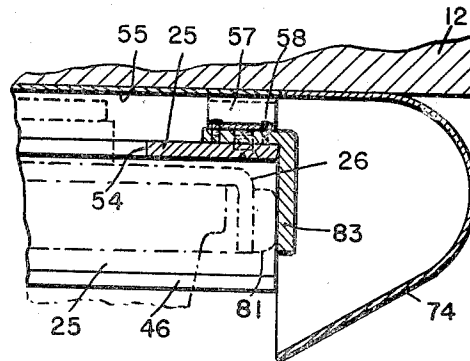


FIG. 7.

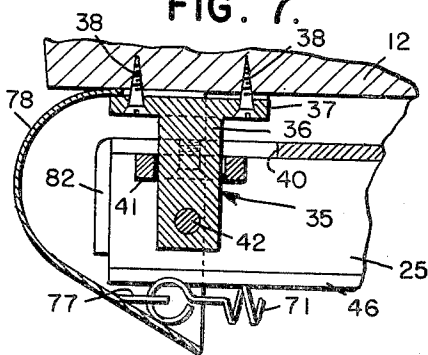


FIG. 6.

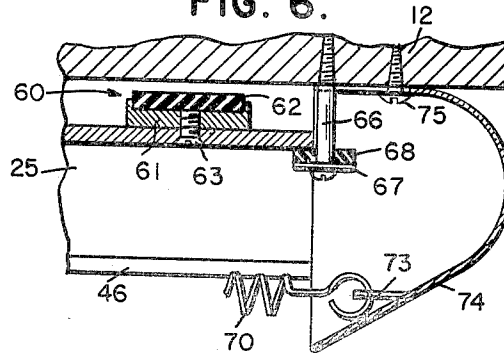
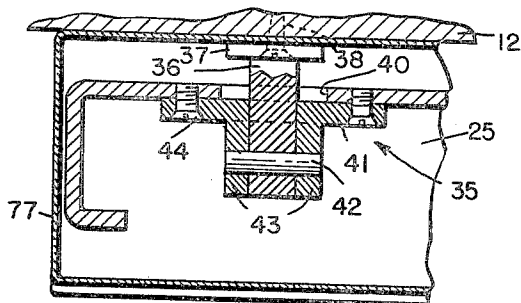


FIG. 8.



INVENTOR

CARL F. CARAMELLI

BY

Mason & Graham

ATTORNEYS

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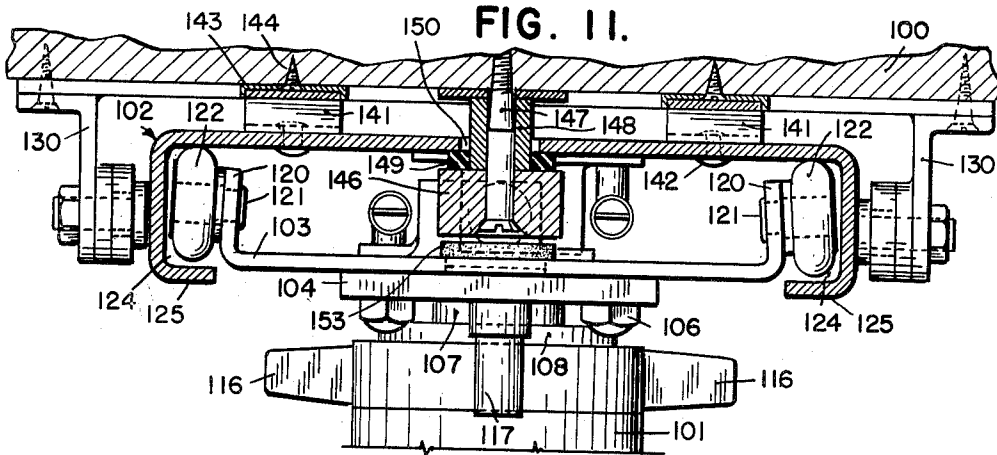
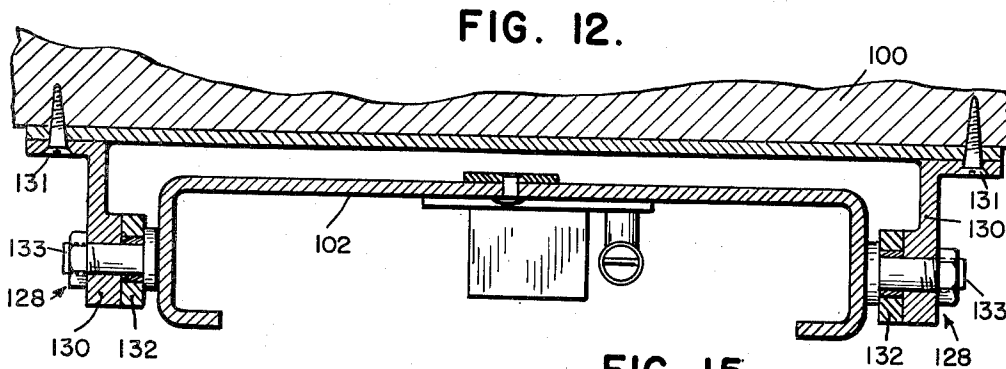
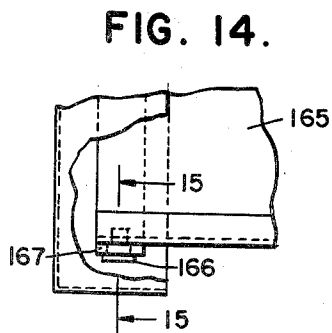
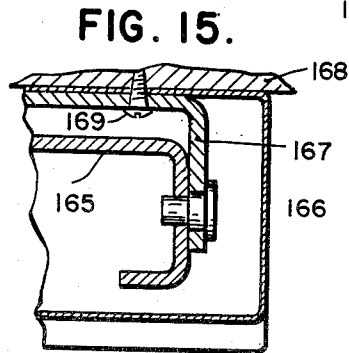
C. F. CARAMELLI

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HINGED PLATE MOVABLE SEAT CONSTRUCTION

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4 Sheets-Sheet 4



INVENTOR
CARL F. CARAMELLI
BY

Mason & Graham
ATTORNEYS

UNITED STATES PATENT OFFICE

2,673,592

HINGED PLATE MOVABLE SEAT
CONSTRUCTIONCarl F. Caramelli, Los Angeles, Calif., assignor to
Peter G. Caramelli, Los Angeles, Calif.

Application November 25, 1949, Serial No. 129,386

6 Claims. (Cl. 155-115)

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This invention has to do with counterstools and particularly with a seat-mounting construction therefor which renders the seat slidably adjustable.

An object of the invention is to provide a novel counterstool seat-mounting construction adapted to be incorporated in counterstools in present use for the purpose of providing a slidably adjustable seat thereon. In this connection it is an object to provide a mounting unit which can be interposed between the seat proper and the mounting bracket or tripod to make the seats slidably adjustable in a horizontal plane.

Another object of the invention is to provide in a seat-mounting construction of the type indicated, a pair of slidably mounted plates, one of which is adapted to be attached to the conventional seat-mounting bracket and the other of which is adapted to be hingedly attached to the seat proper, together with novel braking or locking means actuable by the weight of a person on the seat for preventing sliding movement of the parts.

It is also an object to provide means for automatically releasing the seat when weight is removed therefrom and means for returning the seat to a normal or central position intermediate the limits of its slidable movement.

Another object is to provide a limiting means to prevent undue strain and wear being imposed upon the hingedly mounted parts and the locking or braking elements of the device.

Still another object is to provide a device which can be readily fabricated and which is easy to install.

A further object is to provide a mounting means of the type indicated which is relatively compact and which adds very little to the height of a seat on which it is installed.

These and other objects will be apparent from the drawings and the following description.

Referring to the drawings, which are for illustrative purposes only:

Fig. 1 is a fragmentary side elevational view partly in section of a mounting construction embodying the invention;

Fig. 2 is an inverted sectional plan view as in the plane of line 2-2 of Fig. 1;

Fig. 3 is an end elevational view on the line 3-3 of Fig. 1;

Fig. 4 is an enlarged fragmentary sectional view showing the locking plug construction;

Fig. 5 is an enlarged sectional view on line 5-5 of Fig. 2;

Fig. 6 is a section on line 6-6 of Fig. 2;

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Fig. 7 is a section on line 7-7 of Fig. 2;

Fig. 8 is an enlarged section on line 8-8 of Fig. 2;

Fig. 9 is a side elevational view, partly in section, of a device embodying another form of the invention;

Fig. 10 is an inverted sectional plan view on line 10-10 of Fig. 9;

Fig. 11 is a section on line 11-11 of Fig. 9;

Fig. 12 is a section on line 12-12 of Fig. 9;

Fig. 13 is a section on line 13-13 of Fig. 10;

Fig. 14 is a fragmentary inverted plan view of the seat plate and seat showing another type of mounting; and

Fig. 15 is a section on line 15-15 of Fig. 14.

More particularly describing the invention, referring particularly to Figs. 1-8, numeral 11 generally indicates the post or column of a counterstool which has a seat 12 supported by the column on a rotatable mounting pin 14 received therein and having a conventional spider or mounting bracket 15 at its upper end. The mounting pin is received in a sleeve 16 which in turn is supported by a bushing 17 and retaining screws 18 within the column 11. The lower end of the mounting pin is preferably formed at an angle as at 19 to cooperate with a cam element 20 having a corresponding face, the element 20 being rigidly mounted as by a pin 21. With this construction the device tends to be self-centering when rotated. The amount of rotation of the pin 14 and the elements mounted thereon is preferably limited by abutments 22 formed on bushing 17 which is contacted by the stop flange 23 depending from the mounting spider 15.

Interposed between the mounting bracket 15 and the seat 12 are a seat plate 25 and a base plate 26. The latter is attached directly to the element 15 as by means of bolts 27 extending through the arms 28 of element 15 and the plate itself. The base plate is provided with marginal depending flanges 30 upon which are mounted wheels 31 upon suitable stud shafts 32. These wheels ride in tracks formed in the seat plate as will presently appear.

The seat plate is preferably hingedly attached to the seat in a manner to provide a clearance or space between the upper surface of the plate and the lower surface of the seat proper. The seat plate 25, as shown in Figs. 1, 2, 7, and 8, is provided with a pair of hinges 35. Inasmuch as these structures are the same, only one will be described. Each of the hinged structures includes a post bracket 36 having a base 37 attached to the seat element 12 by screws 38. This post

bracket extends through an opening 40 in the seat plate 25 and is hingedly connected to a mounting bracket 41 by means of a pin 42 which extends through a post bracket and through a pair of depending ears 43 on the mounting bracket. The mounting bracket is secured to the seat plate on the under side by means of screws 44, or it may be welded in place.

It will be apparent that with the construction outlined the seat 12 and seat plate 25 are hingedly connected at what will be termed the front or forward ends of the two members.

The entire seat and its seat plate are slidably movable with respect to the base plate 26, the seat plate being provided with inturned flanges 46 at its lateral margins to provide tracks for receiving the wheels or rollers 31 previously described as being on the base plate.

In order to provide for locking the plates against relative movement when a weight is imposed on the seat, such as by a person sitting on it, I provide a locking or braking pad 50 of rubber or flexible material centrally mounted above the base plate. I have found that rubber of approximately 80 "Shore" hardness is satisfactory. This pad is contained within a cup 51 which is loosely secured to the mounting pin 14 by a screw 52. The pad 50 extends through a slot 54 which extends longitudinally of the seat plate and projects thereabove to a point where only slight clearance is left between the pad and the bottom of the seat. I may provide a metal bearing strip 55 on the under surface of the seat in the area traversed by the locking pad.

Normally, the seat is maintained above the locking pad by means of a spring 57 mounted on the upper surface of the seat plate by screws 58 at the end of the plate opposite the hinges 35. It will be apparent that when a weight is imposed upon the seat sufficient to overcome the spring that the seat will move downwardly until it contacts the locking pad 50 which will then serve to prevent slidable movement of the seat relative to the base plate.

I prefer to provide a means for limiting downward movement of the seat relative to the seat plate for the purpose of preventing undue pressure being imposed upon the locking pad and of preventing undue strain being placed upon the hinges 35 and the seat plate. Such means may consist of a pair of pressure limiting pads 60 which are of less height than the central locking pad 50. These pads may consist of a base 61 and a resilient or rubber-like upper portion 62 with the base secured to the seat plate by screws 63.

Preferably, also, means are provided for limiting upward movement of the seat relative to the seat plate and this may consist of one or more screws 66 mounted in the seat and positioned at the rear edge of the seat plate. The screw is provided with a washer 67 and a rubber bumper 68 which extend under the edge of the seat plate.

I provide a pair of springs mounted to operate in opposite directions for the purpose of returning the seat to a normal or central position within the range of its sliding movement. These springs, indicated by 70 and 71, are preferably mounted side by side to prevent undue torsion being exerted upon the plates. Spring 70 is secured at 72 to the base plate and at 73 to an ear on a fender 74 secured to the seat as by screws 75. The other spring is secured at 76 to the plate 26 and at its other end at 77 to a fender 78 at the forward end of the seat.

For the purpose of limiting the relative sliding movement between the plates, I provide a pair

of bumpers, separately indicated at 80 and 81, on the base plate which are in longitudinal alignment with a pair of depending flanges 82 and 83 on the seat plate and against which they strike, respectively, to limit relative sliding movement of the plates.

In the operation of the form of invention described above, it will be apparent that, normally the seat may be slid forward or backward against the action of the springs 70 and 71 when there is no weight imposed upon it. However, when weight is imposed upon the seat, the same moves downwardly until the locking pad 50 is engaged by the seat, thereby preventing further sliding movement of the seat. The pressure limiter pads 62 serve to protect the parts against strain resulting from unduly heavy weights being imposed upon the seat.

In Figs. 9-14, I show a seat-mounting construction embodying another form of the invention. Referring to these figures, reference numeral 100 generally indicates a counterstool seat which is supported by the construction to be described upon a post or column 101. Interposed between the seat and the column are a seat plate 102 and a base plate 103. The base plate 103 is secured to a mounting plate 104 by means of screws 106. The plate 104 is welded or otherwise secured to the upper end of a mounting pin 107 which extends into the standard 101 being received for slidable and rotative movement in a bushing 108. The bushing is releasably mounted in an adapter sleeve 109, the parts being secured in the column 101 by set screws 110. A cam member 112 is secured in the lower end of the bushing 108 as by a pin 113. The lower end of the mounting pin and upper end of the cam member are provided with corresponding angularly disposed surfaces 114 for the purpose of rotatively returning the seat to the position in which it is shown. The upper end of the adapter 109 is provided with two radially extending lugs 116 which act as stops for a depending pin 117 on plate 104 to limit pivotal movement of the seat.

The base plate 103 is provided with upwardly extending marginal flanges 120, in each of which are mounted pins 121 supporting rollers 122. The rollers are received within a track 124 formed by a depending and inwardly turned flange 125 at the margins of the seat plate.

The seat plate is hingedly secured to the seat by hinges 128. These hinges comprise a pair of brackets 130 secured to the seat by screws 131. Pivotaly mounted on the brackets 130 are forwardly extending links 132, the parts being connected by bolts 133. The links 132 are pivotaly secured to the forward ends of the flanges of the seat plate by pins 135.

The seat plate is floatingly secured at its rearward end to the seat at 137 and 138. At each of these points a leaf spring 141 is mounted, as by rivets 142, to the upper surface of the seat plate and curves upwardly to bear against a bearing plate 143 secured to the seat by screws 144. It will be obvious that with this construction the rearward portion of the seat is raised relative to the seat plate. A third spring 141 is employed forward and centrally of the seat.

For the purpose of preventing relative sliding or longitudinal movement between the base and seat plates, a locking means is provided which includes a locking bar 146 secured to the seat by a pair of screws 147. The bar is spaced from the seat and located below the under surface of

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the seat plate by spacer sleeves 148 on the screws and preferably a rubber washer or silencer 149 is provided between the bar and the seat plate. A relatively large opening 150 is provided in the seat in the region of each of the screws 147.

The upper surface of the base plate is provided with a recess 152 to receive a rubber or resilient locking pad 153 which projects above the seat plate to a point short of the under surface of the locking bar as shown in Fig. 9. It will be apparent that when weight is imposed upon the seat, the seat descends relative to the seat plate until the locking bar contacts the upper surface of the locking pad which then serves as a brake to prevent sliding movement of the parts.

The seat plate and base plate are normally held in the position shown by means of springs 155 and 156. Spring 155 is secured at 157 to the base plate and at 158 to the seat plate. The other spring is secured at 160 to the base plate and 161 to the seat plate.

In some instances it may be desirable to directly hingedly mount the seat plate on the seat in which case the links 132 may be eliminated as shown in Figs 14 and 15 wherein I fragmentarily show a seat plate 165 hingedly secured by bolt 166 to a mounting bracket 167 attached to the seat 168 by screws 169. It is also obvious that by using links 132 of different lengths I can accommodate the structures to seats of various lengths.

In the operation of the device shown in Figs. 9-14, it will be apparent that with no weight imposed on the seat, the same may be moved longitudinally to any desired position. When weight is imposed on the seat, as by a person sitting on the seat, the seat descends, causing the locking bar to engage the locking pad which serves as a brake to resist further movement of the plates relative to each other. The springs serve to center or return the seat to its original position when the weight is removed from the seat.

Although the invention has been particularly shown and described, it is contemplated that various changes and modifications may be made without departing from the scope thereof as indicated by the following claims.

I claim:

1. In a movable seat mounting constructed and arranged to be interposed between a support and a seat, a base plate carried by said support, a seat plate mounted on said base plate for limited linear movement thereon, hinge means connecting said seat plate and said seat for movement of the seat relative to said plate, and brake means interposed between said seat and said support operable under the influence of a weight imposed upon said seat to prevent relative movement of said plates, said brake means including a resilient pad engageable by a portion of said seat upon a predetermined amount of movement of said seat toward said support.

2. In a movable seat mounting constructed and arranged to be interposed between a support and a seat, a base plate carried by said support, a seat plate mounted on said base plate for limited linear movement thereon, hinge means connect-

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ing said seat plate and said seat between the center of the seat plate and one end thereof, spring means interposed between said seat plate and said seat yieldably urging the seat plate and seat apart, and brake means interposed between said seat and said base plate operable upon downward movement of said seat, said brake means including a resilient pad engageable by a portion of said seat.

3. In a movable seat mounting constructed and arranged to be interposed between a support and a seat, a base plate carried by said support, a seat plate mounted on said base plate for limited linear movement thereon, hinge means connecting said seat plate and said seat for movement of the seat relative to said plate, a resilient brake pad interposed between said seat and said support and engageable by said seat upon downward movement thereof to prevent relative movement of said plates, and limiting means between said seat and said seat plate operable after said seat has engaged said brake pad for limiting downward movement of said seat.

4. In a movable seat mounting constructed and arranged to be interposed between a column or support and a seat, a base construction including a mounting pin received in said support and a base plate carried on the pin, a seat plate carried by said base plate for limited linear movement thereon, means mounting said seat on said seat plate for movement toward and away from the plate, a resilient brake pad carried by said pin and projecting above said plates in position to be engaged by said seat, said seat plate having a longitudinal slot receiving said pad, and spring means urging said seat away from said seat plate.

5. A mounting as defined in claim 4 in which limiting means are provided for limiting movement of said seat toward said seat plate.

6. In a movable seat mounting constructed and arranged to be interposed between a support and a seat, a base plate carried by said support, a seat plate mounted on said base plate for limited linear movement thereon, hinge means connecting said seat plate and said seat, said hinge means including a pair of hinges, said hinges being pivotally mounted at one end on an end of said seat plate and being pivotally secured at other ends to said seat in a region between the end of said seat plate and the center thereof, spring means interposed between said seat plate and said seat yieldably urging the seat plate and seat apart, and brake means interposed between said seat and said support operable under the influence of a weight imposed upon said seat to prevent relative movement of said plates.

CARL F. CARAMELLI.

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