Jan. 28, 1941. A. F. RADERS 2,229,769

ADJUSTABLE SEAT

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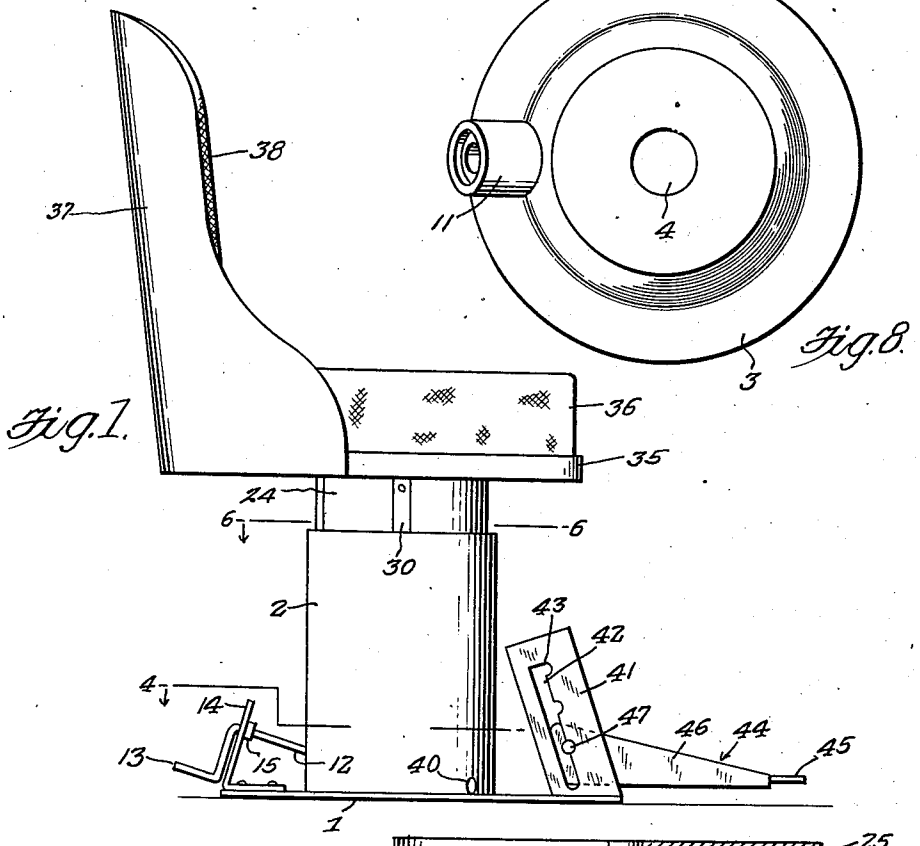


Fig. 1.

Fig. 8.

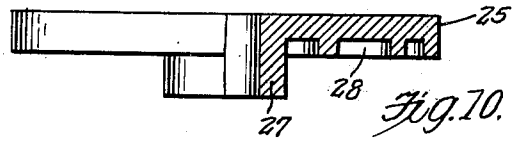


Fig. 10.

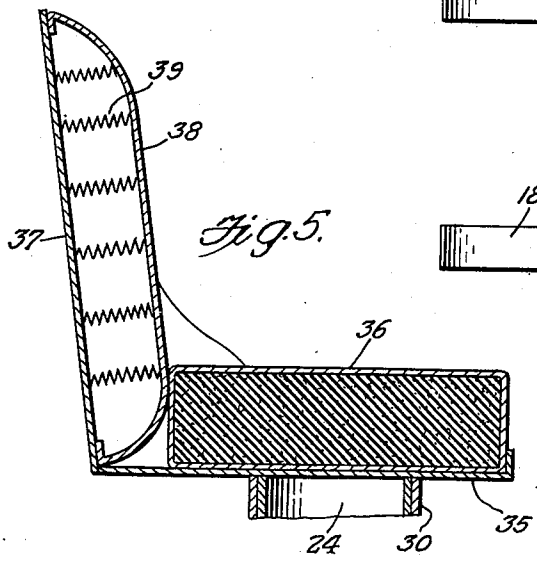


Fig. 5.

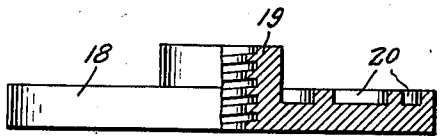


Fig. 11.

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Fig. 2.

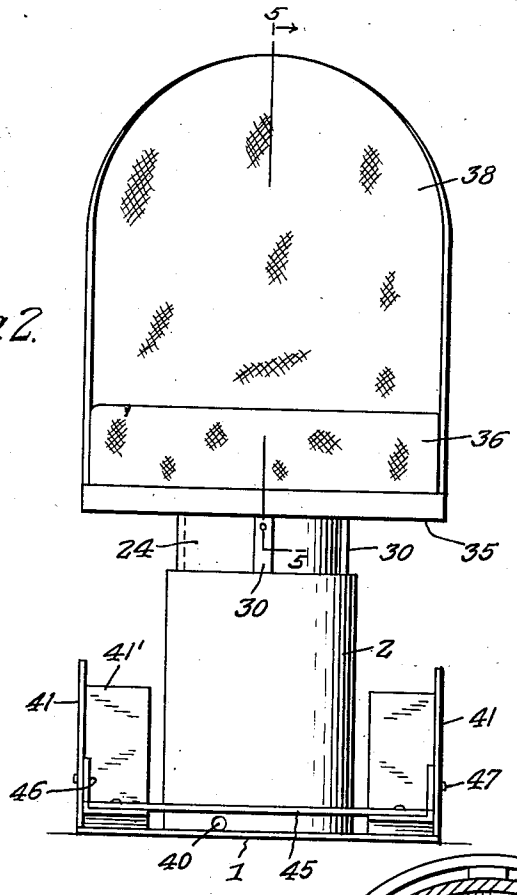


Fig. 6.

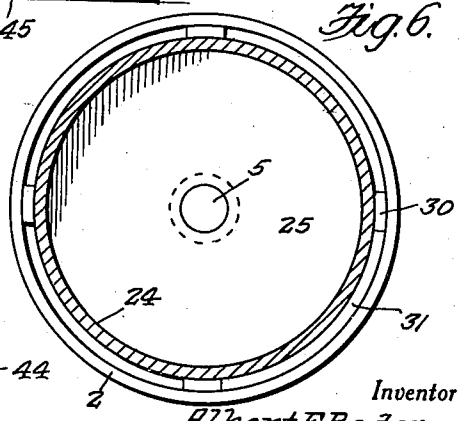
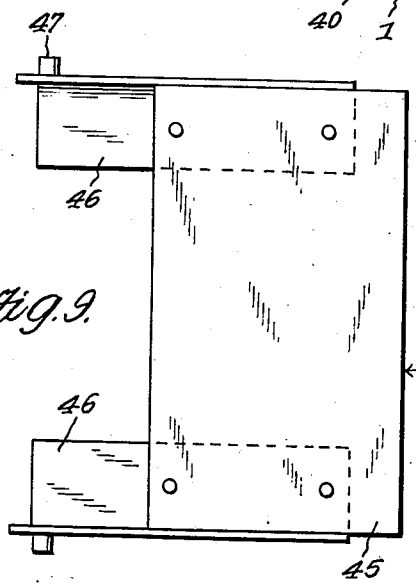


Fig. 9.



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Fig. 3.

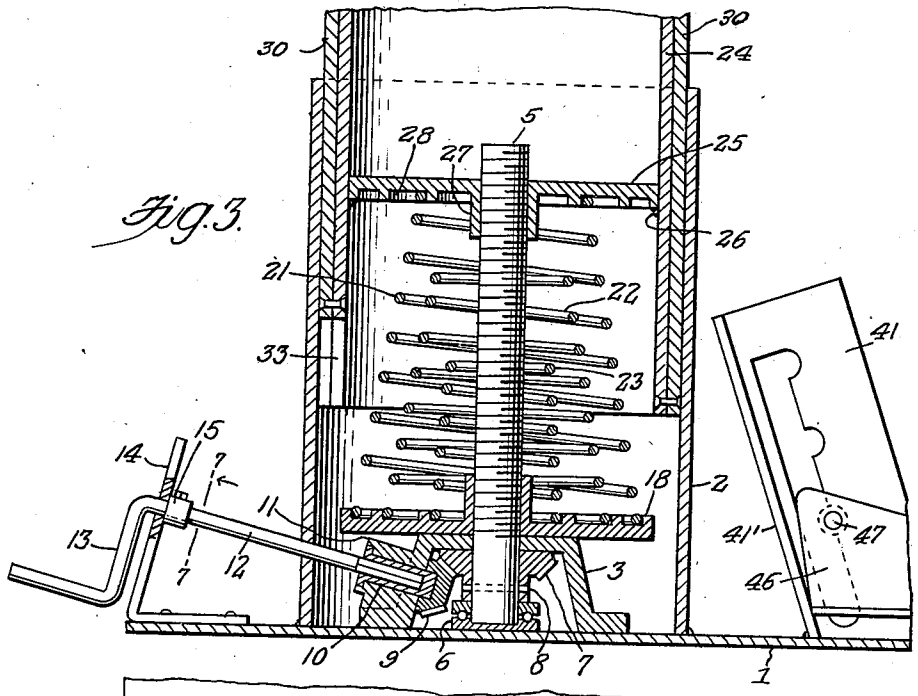
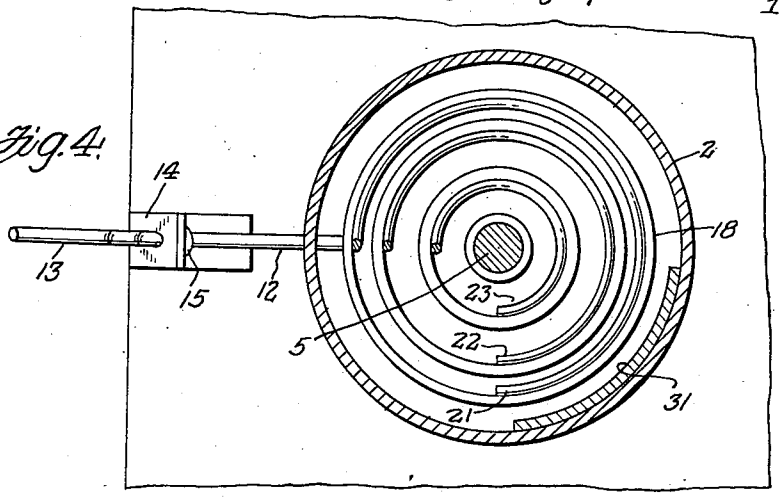


Fig. 4.



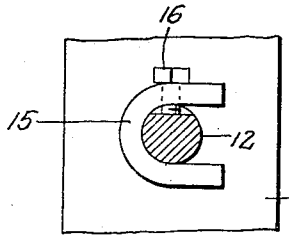


Fig. 7.

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UNITED STATES PATENT OFFICE

2,229,769

ADJUSTABLE SEAT

Albert F. Raders, Freeport, Ill.

Application December 26, 1939, Serial No. 311,022

3 Claims. (Cl. 155—52)

This invention relates to an adjustable seat which is mainly designed for locomotive engineers, the general object of the invention being to provide a seat having a depending member attached thereto which telescopes an upright member with spring means for normally holding the seat in raised position, such spring means being so constructed and arranged as to automatically and properly take the weight of the person occupying the seat in accordance with the weight, so that the seat is a resilient one and the spring means adjust themselves to the amount of the weight of the occupant of the chair.

Another object of the invention is to provide means for adjusting the vertical position of the spring which controls the height of the seat of the chair from the base and also to provide novel footrest means.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a side elevational view of the improved chair.

Figure 2 is a front view thereof.

Figure 3 is a vertical sectional view through the lower part of the supporting means for the chair.

Figure 4 is a section on the line 4—4 of Figure 1.

Figure 5 is a section on the line 5—5 of Figure 2.

Figure 6 is a section on the line 6—6 of Figure 1.

Figure 7 is a section on the line 7—7 of Figure 3.

Figure 8 is a top plan view of the conical base member.

Figure 9 is a top plan view of the footrest supporting means.

Figure 10 is a view partly in section of the upper disk.

Figure 11 is a similar view of the lower disk.

In these views the numeral 1 indicates a base plate to which is connected by welding or the like the lower end of a tubular member 2 and also secured to the plate 1 within the tubular member 2 is a conical base 3 which has a centrally arranged hole 4 therein for the passage of a vertically arranged screw shaft 5, the lower end of which is supported on the base plate 1 within the member 3 by the anti-friction means 6. A beveled gear 7 is connected to the lower end of the shaft 5 as shown at 8 and a beveled gear 9 is also located in the space formed by the member 3 and engages the gear 7 and is attached to a socketed hub 10 rotatably arranged in a bearing part 11 formed on the member 3 as shown more clearly in Figure 8. The socket in the member 10 is of non-circular shape in cross section to receive the non-circular part of a shaft 12 which has a crank outer end 13 acting as a handle and said shaft is journaled in an upright bracket 14 attached to an outer part of the plate 1. A U-shaped clip 15 (see Figure 7) is fastened to a part of the shaft 12 by a bolt 16 engaging a flat part of the shaft and said clip is located adjacent the bracket 14 to removably hold the shaft 12 in position with its non-circular inner end engaging the socket in the member 10. By removing the clip the shaft can be withdrawn. As will be seen this arrangement provides means for rotating the screw shaft 5 to adjust vertically a disk 18 which has an internally threaded hub 19 (see Figure 11) through which the threaded part of the shaft passes. The upper face of this disk 18 is provided with three annular grooves 20, the outer one of which receives a long and wide coil spring 21, the intermediate one of which receives a shorter and narrower coil spring 22 while the inner one receives a short and still narrower coil spring 23, all the springs tapering upwardly as shown in Figure 3.

A tubular member 24 has sliding movement in the member 2 and a disk 25 extends across the tubular member 24 and is welded thereto as shown at 26 and the hub 27 of this disk 25 (see Figure 10) is plain so that it has a sliding movement on the shaft 5. The lower face of this disk 25 is provided with three annular grooves 28 for receiving the upper ends of the springs though when the seat is unoccupied only the upper end of the long outer spring 21 will engage the disk 25.

Vertically arranged ribs 30 are connected with the exterior part of the member 24 and are spaced apart and extend into the member 2. An arcuate vertically arranged plate 31 is attached to the inner circumference of the tubular member 2 and extends between the space between a pair of these ribs 30 and acts to prevent rotary movement of the tubular member 24 in the member 2. A notch 33 is formed in the lower end of

the member 24 to pass over the shaft 12 when the member 24 nears the lower end of its downward movement.

A seat base 35 is secured to the upper end of the tubular member 24 and a cushion 36 is supported by this base 35, this cushion preferably being formed of baked sponge rubber covered with a suitable covering, as shown in Figure 5. The back plate of the seat is shown at 37 and the cushion part 38 carried thereby contains the springs 39 as also shown in Figure 5.

A hole 40 is formed in the lower end of the outer tubular member 2 for the escape of any moisture which may collect in the member 2.

Upwardly and rearwardly sloping uprights 41 are secured in spaced relation to the front of the base plate 1 and these uprights have the longitudinally extending slots 42 therein, the front walls of which are formed with the spaced notches 43. The footrest 44 includes a plate 45 fastened to the angle members 46 which project rearwardly from the plate and their vertical flanges have the outwardly extending projections 47 thereon which fit in the slot 42 and adapted to engage the notches 43 to hold the footrest in adjusted position. As shown in Figure 1 the footrest can be tilted upwardly and rearwardly so as to space the rear ends of the members 46 from the inwardly extending flanges 41' of the uprights 41, see Figure 3, and then the projections 47 can be moved along the slots 42 to place the projections 47 in the desired pair of notches 43. Then by tilting the footrest downwardly the said footrest will be held in adjusted position in the uprights 41.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts provided that such changes fall within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A seat of the class described comprising a tubular upright base member, a second tubular member slidably arranged in the base member, a seat connected with the upper end of the second tubular member, a transverse member in each tubular member, a plurality of springs having their lower ends engaging the transverse member in the first tubular member, said springs being of different lengths and of different diameters with the longest spring engaging the transverse member of the second tubular member, and means for raising and lowering the transverse member in the tubular base member.

2. A seat of the class described comprising a tubular upright base member, a second tubular member slidably arranged in the base member, a seat connected with the upper end of the second tubular member, a transverse member in each tubular member, a plurality of springs having their lower ends engaging the transverse member in the first tubular member, said springs being of different lengths and of different diameters with the longest spring engaging the transverse member of the second tubular member, and means for raising and lowering the transverse member in the tubular base member, said means including a screw shaft vertically arranged in the tubular base member and supported for rotary movement therein and the transverse member having a threaded hole therein through which the threaded shaft passes and means for rotating the shaft.

3. An adjustable seat of the class described comprising a base plate, a tubular member attached thereto at its lower end, a seat, a tubular member having its upper end connected with the seat and the second-mentioned tubular member having a sliding fit in the first tubular member, means for preventing rotary movement of the second tubular member in the first tubular member while permitting vertical movement thereof, a plurality of spring means supported in the first tubular member, said springs being of different lengths, a transverse member in the second tubular member for engaging the upper ends of said springs, a seat for the spring means located in the first tubular member and means for adjusting the spring seat vertically to raise and lower the tubular member which carries the first-mentioned seat, said means including a part extending through a side portion of the first tubular member whereby the spring seat can be adjusted from the exterior of said tubular member.

ALBERT F. RADERS.