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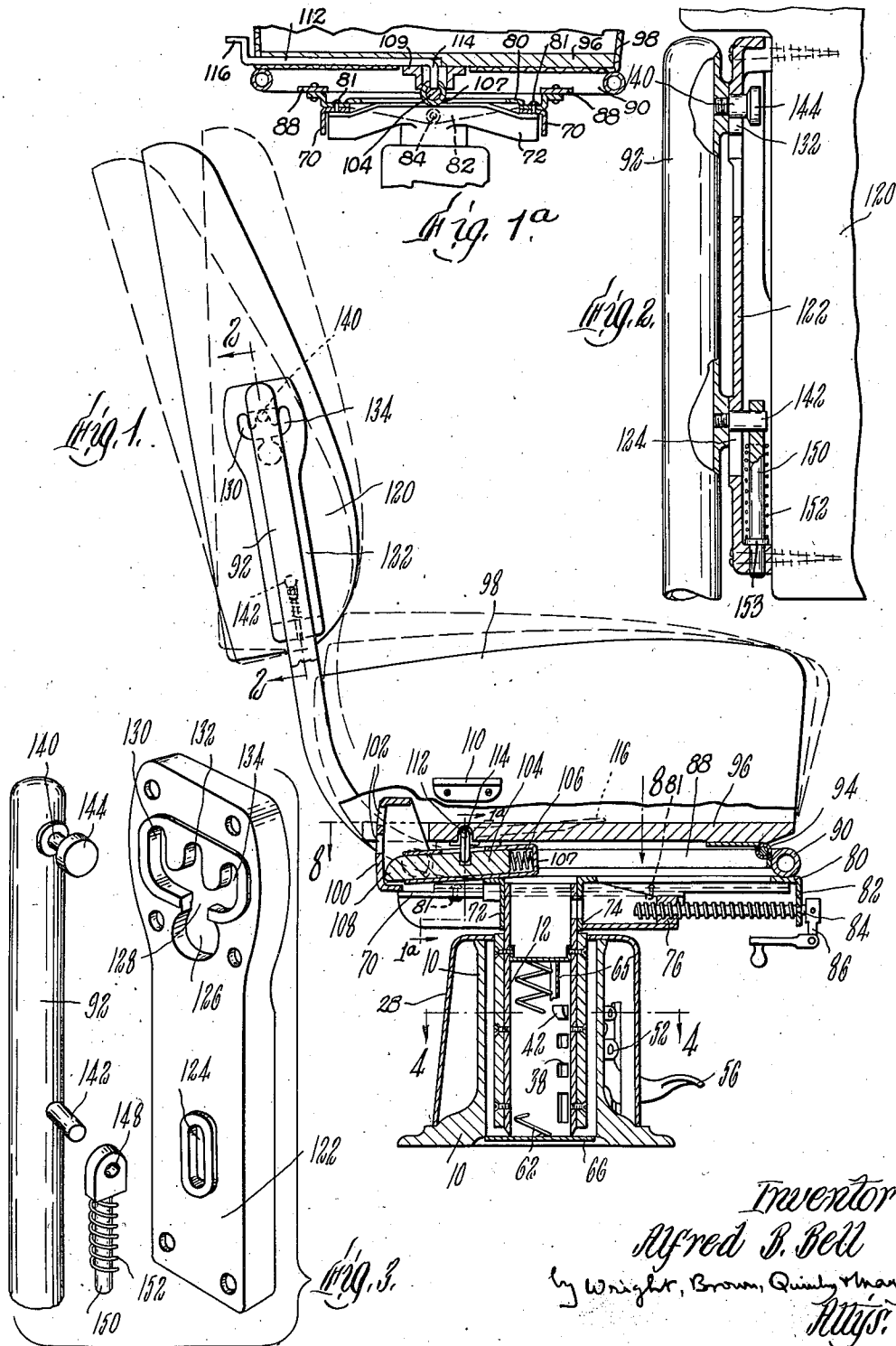
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DRIVER'S CHAIR

Filed Dec. 26, 1939

2 Sheets-Sheet 1



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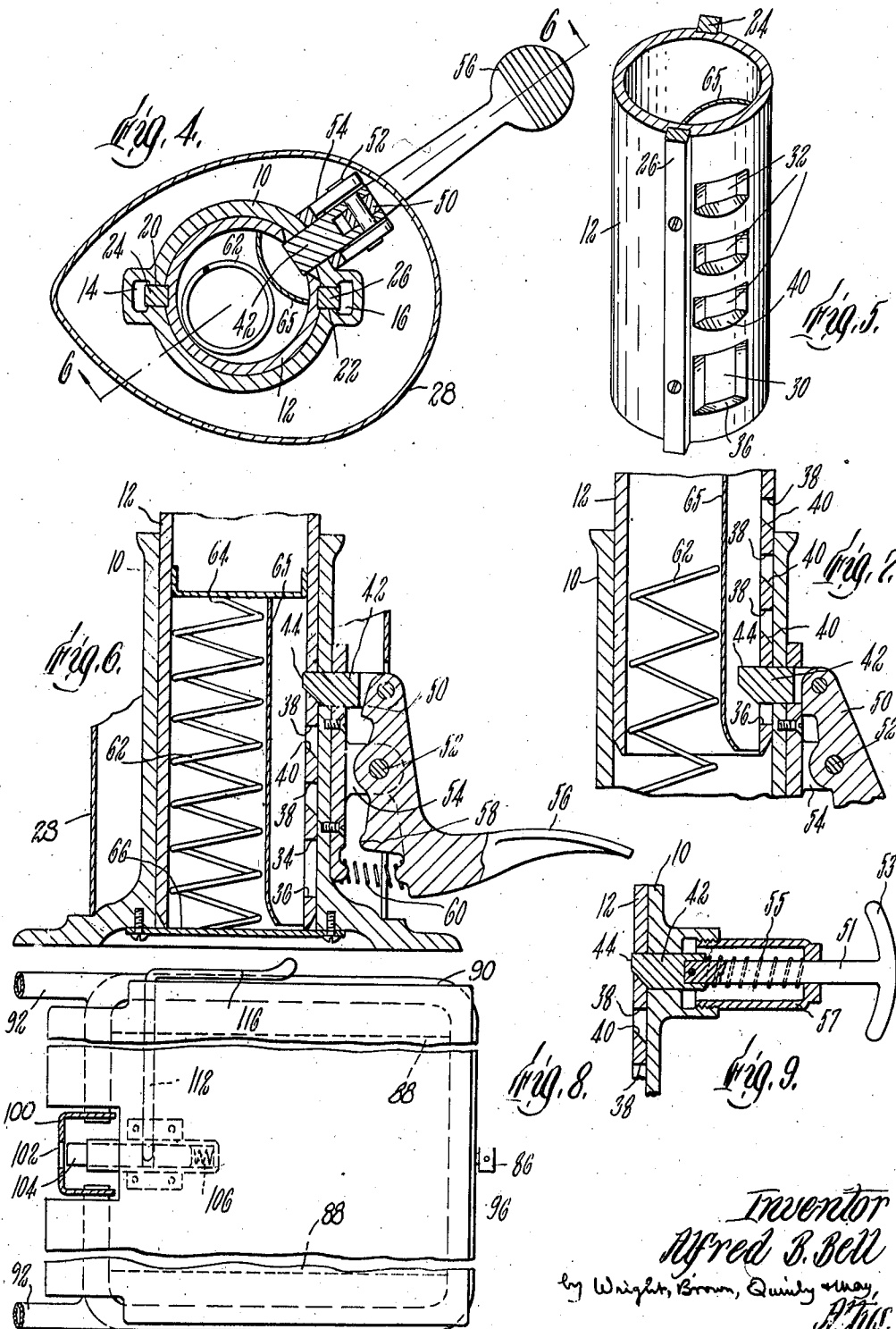
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UNITED STATES PATENT OFFICE

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DRIVER'S CHAIR

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1 Claim. (Cl. 155—94)

This invention relates to an adjustable chair adapted for use as a bus driver's seat or for other equivalent uses.

Drivers of vehicles such as motor busses customarily occupy the driver's seat for considerable period of time when on duty. It is important that the seat and its back be so arranged as to support the driver in a natural and comfortable position. A strained or awkward position of the driver results in fatigue which increases the danger of accidents. Since a motor bus may be operated by different successive drivers, it is desirable that the driver's chair be adjustable to accommodate drivers of different sizes.

It is an object of the invention to provide a chair with improved means for effecting various adjustments quickly and easily.

For a more complete understanding of the invention, reference may be had to the following description thereof, and to the drawings of which—

Figure 1 is a side elevation of a chair embodying the invention, portions being broken away to show in section.

Figure 1a is a fragmentary sectional view on the line 1a—1a of Figure 1.

Figure 2 is a fragmentary section on the line 2—2 of Figure 1.

Figure 3 is a perspective view of parts of the chair by which the back is supported.

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

Figure 5 is a perspective view of the stem which supports the seat.

Figure 6 is a section on the line 6—6 of Figure 4.

Figure 7 is a fragmentary sectional view of a portion of the structure shown in Figure 6, the parts being shown in a different position of operation.

Figure 8 is a section on the line 8—8 of Figure 1.

Figure 9 is a fragmentary sectional view of a modified form of the invention.

The chair illustrated in the drawings is provided with a stationary pedestal 10 adapted to be secured to the floor of a vehicle. As illustrated in Figure 4, the upright portion of the pedestal 10 is generally cylindrical and is made with a central cylindrical bore in which is slidable a stem 12. The upright of the pedestal is also provided with a pair of parallel auxiliary bores 14 and 16 which are connected to the central bore by slots 20 and 22, these slots being for

the purpose of slidably receiving a pair of splined elements 24 and 26 which are elongated as indicated in Figure 5 to extend substantially the entire length of the stem 12 and which are rigidly secured to the stem, the stem having shallow longitudinal grooves formed in its side wall at opposing points to receive these splines as indicated in Figures 4 and 5. The spline elements 24 and 26 may be permanently secured to the stem in any suitable manner such as by screws, welding or the like. The pedestal 10 is preferably surrounded by a protective and ornamental housing 28. The stem 12 supports the seat of the chair and is vertically adjustable to adjust the height of the seat. To this end suitable notches are cut in the side wall of the stem to form ratchet teeth by which the stem and the seat mounted thereon can be maintained at different heights as desired. The stem 12 is preferably hollow as indicated in Figures 4 and 5 and is preferably formed with a relatively thin wall to minimize weight and cost. The notches which are cut in a vertical series to form the ratchet teeth penetrate the wall of the stem and form apertures therethrough. The lowermost notch 30 is longer than the upper notches 32. The notch 30 also differs from notches 32 in that it forms upper and lower horizontal shoulders 34 and 36, whereas each of the notches 32 has an upper shoulder 38 which is horizontal and a sloping lower shoulder 40. Cooperating with these notches, the shoulders of which are equivalent to ratchet teeth, is a pawl 42 which projects through a suitable aperture in the side wall of the pedestal 10 and is arranged to enter any one of the apertures formed by the notches in the stem. As shown in Figure 6, the pawl 42 is provided with a nose 44 which has a horizontal top surface and an inclined lower surface so that the nose is tapered. This nose is adapted to fit into any of the notches 32 so that its lower inclined face rests against the shoulder 40. In each of the upper notches 32, the shoulders 38 and 40 are spaced in such a manner as to receive the tapered nose only of the pawl 42. Thus the pawl can project into the notches 32 only to the extent indicated in Figure 6. It is thus evident that, if the stem be raised, the inclined surface of the nose 44 will be acted upon by the inclined shoulder 40 with which it is engaged to push the pawl 42 outward so as to permit upward movement of the stem and the seat which it supports. The lowermost notch 30, however, has an aperture through the wall of the stem large enough to receive the full cross section of the pawl 42,

so that when the notch 30 is in register with the pawl the nose of the pawl may project entirely beyond the wall of the stem so as to be entirely within the stem as indicated in Figure 7. Since the lower shoulder 36 is horizontal and is arranged to engage the horizontal bottom face of the shoulder when the tapered nose is entirely within the stem, removal of the stem from the bore in the pedestal is prevented unless the pawl be first retracted from the notch 30. The pawl 42 is pivotally attached to a rocking lever 53 which is rockably mounted as at 52 between a pair of ears 54 secured to the pedestal 10. A treadle element 56 projects outward through the housing 28 and is arranged in such a manner as to retract the pawl 42 when the treadle is depressed. A stop element 58 is preferably provided on the lever 50 to prevent excessive retraction of the pawl 42 such as might move it clear of the pedestal wall. A suitable compression spring 60 is shown on the drawings for the purpose of pressing the pawl 42 resiliently inward, so that when the treadle 56 is released the pawl tends to press into whichever notch is in registry therewith.

Instead of using a lever 50 to retract the pawl 42, a simple stem 51 may be employed, such stem being attached to the pawl 42 and having a convenient handle 53 at its outer end whereby the occupant of the chair can readily retract the pawl 42 from whatever notch it may be engaged in. To press the pawl inward, a compression spring 55 may be provided thereon, a housing 57 being located around the stem to take the thrust of the spring 55. The inner end of the spring bears on the pawl 42.

In order to facilitate vertical adjustment of the seat, a portion of the weight thereof may be taken by a suitable compression spring 62 located inside of the stem 12, the upper end of this spring bearing against a transverse plate 64 which is secured within the stem. The lower end of the spring 62 may bear against a plate 66 which is fixed to the pedestal 10 at the bottom of its cylindrical bore.

A shield 65 is provided within the bore of the pedestal to prevent interference between the spring 62 and the pawl 42. This shield may also serve as a stop to limit the inward movement of the pawl when its nose enters the lowermost aperture 30. As indicated in Figures 4 and 5, the shield 65 may conveniently be a portion of a cylinder which is secured within the stem 12 by any suitable means, such as welding.

The operation of the foregoing portion of the chair is simple. If it is desired to elevate the seat, the seat is manually raised to the desired height, the pawl being successively pushed out of the upper notches 32 by engagement with the inclined shoulders 40. If the seat is moved to its highest position of adjustment, the nose 44 of the pawl projects through the lowermost notch 30 so as to be entirely within the bore of the stem 12. Further upward movement of the chair and stem is thereupon prevented by engagement of the lower shoulder 36 of the notch 30 with the horizontal bottom face of the pawl 42. If removal of the seat and stem from the pedestal is desired, it is only necessary to step on the treadle 56 so as to retract the pawl from the notch 30, whereupon the seat and stem can be lifted clear. In order to lower the seat, the treadle 56 must be pressed to permit the upper notches 32 to move down past the retracted nose of the pawl.

Mounted on the upper end of the stem 12 are a pair of parallel rails extending horizontally and connected by suitable transverse members 72, 74 and 76. Slidably mounted on these rails is a horizontal skeleton platform or frame 80 which is held thereon by pin-and-slot connections 81 which permit sliding movement of the platform in a front-to-rear direction on the rails 70. The platform 80 is provided with a bearing member 82 for a screw-threaded shaft 84, on the forward end of which is a convenient operating handle 86. The threaded shaft 84 extends rearwardly from the handle 86 and is in threaded engagement with the transverse member 76. Rotation of the threaded shaft 84 thus results in a forward or rearward movement of the platform 80. Bolted or riveted to the side margins of the platform 80 are a pair of longitudinal bars 88 to the ends of which is welded a tubular member 90. As indicated in Figure 8, this tubular member has a transverse front portion, side portions parallel to the bars 88, and rear portions which are connected by a member 100, hereinafter referred to. From the side portions 25 of the tubular frame member 90 a pair of extensions 92 branch off and curve upwardly to serve as supports for the back rest of the chair.

Hinged as at 94 to the forward portion of the tubular frame 90 is a seat-cushion frame 96 on which is directly mounted the seat cushion 98. The seat cushion and its frame are thus rockable on the hinge 94 to adjusted positions as indicated by broken lines in Figure 1. These different positions are characterized by different degrees of elevation of the rear end of the seat cushion. In order to support the seat cushion in such adjusted positions, the member 100 which connects the ends of the tubular member 90 is provided with a number of suitable apertures 102. A pawl 104 is mounted on the bottom of the seat frame 96 for longitudinal sliding movement in such a direction as to engage the fixed member 100 as indicated in Figure 1. A suitable compression spring 106 presses the tapered nose 103 of the pawl against the member 100, the pawl and spring being housed in a casing 107 which is secured by a pair of brackets 109 to the seat frame 96. A pair of hand grips 110 may be mounted on the sides of the seat cushion 98 to facilitate lifting the rear portion of the seat cushion. When the seat 98 is rocked on its hinge so that its rear end is elevated, the nose 103 on the pawl 104 slides upward against the face of the member 100 until it registers with one of the apertures 102. Thereupon the spring 106 pushes the tapered nose into such aperture. The upper surface of the nose is inclined, so that, if the lifting is continued, the nose will be forced out of the opening 102 and will snap into the next opening when the pawl comes into registry therewith. The lower surface of the nose 103 is not inclined so that the seat is held in adjusted position by the pawl 104 until the pawl is retracted to permit the rear end of the seat to descend. For convenient retraction of the pawl 104, a rockshaft 112 is mounted on the seat frame 96. A finger 114 projects radially from the shaft 112 into a suitable notch in the pawl, so that if the shaft is rocked in the proper direction the finger 114 will retract the pawl 104. The shaft 112 projects out to one side of the seat cushion 98 and is provided with an operating lever 116. This lever projects forward from the shaft 112 so that its end portion is convenient to the hand of the operator and can be easily

grasped to rock the shaft and release the pawl from the openings 132.

A seat-back 120 is releasably supported on the uprights 92 and can be adjusted thereon to various angles of inclination. To this end, a shallow housing member 122 is secured to each side edge of the seat-back 120. Each housing member, as illustrated in Figure 3, is elongated and is provided with a slot 124 near its lower end and a branch aperture near its upper end. This aperture, as shown, may consist of a circular hole 126 from which a slot 128 extends upward and branches into three recesses or notches 130, 132 and 134. On each upright 92 is an upper pin 140 and a lower pin 142. The pins on each upright project toward the other upright and each upper pin 140 is provided with a head 144 adapted to enter the hole 126 on the corresponding housing member 122. The slot 128 and its branches are wide enough for the pin 140 but are narrower than the diameter of the head 144 so that as long as the pin 140 is kept in the slot 128 or any of its branches, the housing 122 is locked to the upright 92. As indicated in Figure 2, the lower pin 142 projects through the slot 124 and also through a hole 148 in the upper end of a plunger 150. This plunger extends down within the housing member 122 through a hole in the lower wall of the housing member. A compression spring 152 is carried by the plunger 150 and presses downward through a loose washer 153 against the lower wall of the housing member 122. The two springs 152 thus tend to push the seat-back 120 downward, assisting force of gravity. Since the pins 140 and 142 ride in slots, the seat-back can be manually raised a limited distance against the force of gravity and the pressure of the two springs 152. By raising the seat-back, the upper pins 140 are caused to ride out of the branch notches in which they have been seated. The seat-back can thus be tilted so as to permit the pins 140 to enter other notches, thus holding the seat-back in a different angle of inclination. In the embodiment of the invention illustrated on the

drawings, three possible angles of inclination for the seat-back are provided since each housing member has a slot with three branches or notches. If desired, a greater or lesser number of notches can be provided.

It is evident that various modifications and changes may be made in the embodiment of the invention herein shown and described without departing from the spirit or scope thereof as defined in the following claim.

I claim:

A chair of the class described, comprising a stationary upright pedestal having a vertical bore therein, a hollow cylindrical stem slidably mounted in said bore, spline means preventing rotation of said stem in said bore, a seat carried by said stem, and means for adjusting the height of the seat, said adjusting means including a vertical row of notches in the side of the stem forming ratchet teeth, each notch having a horizontal upper shoulder and an inclined lower shoulder, a pawl mounted on said pedestal and horizontally slidable through the side thereof to enter any of said notches, said pawl having a horizontal upper edge extending substantially to the extremity of the pawl and a lower edge which is horizontal except for an inclined portion adjacent to said extremity, each said notch being of such size as to receive the extremity of said pawl with its upper edge bearing on the horizontal upper shoulder of the notch and the inclined portion of the lower edge of said extremity bearing on the inclined lower shoulder of the notch, said stem also having an aperture therethrough below said notches and with horizontal upper and lower shoulders engageable by horizontal portions of the upper and lower edges of said pawl whereby to lock the stem against both upward and downward motion, a compression spring in said stem pressing upward against the weight of the seat, a vertical shield within said stem between said spring and the notched portion of the stem wall, and spring means pressing said pawl inward.

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