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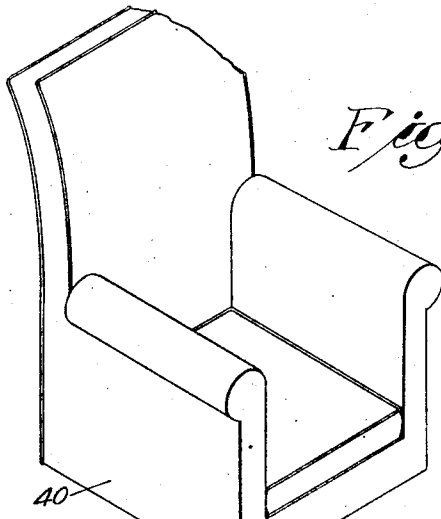
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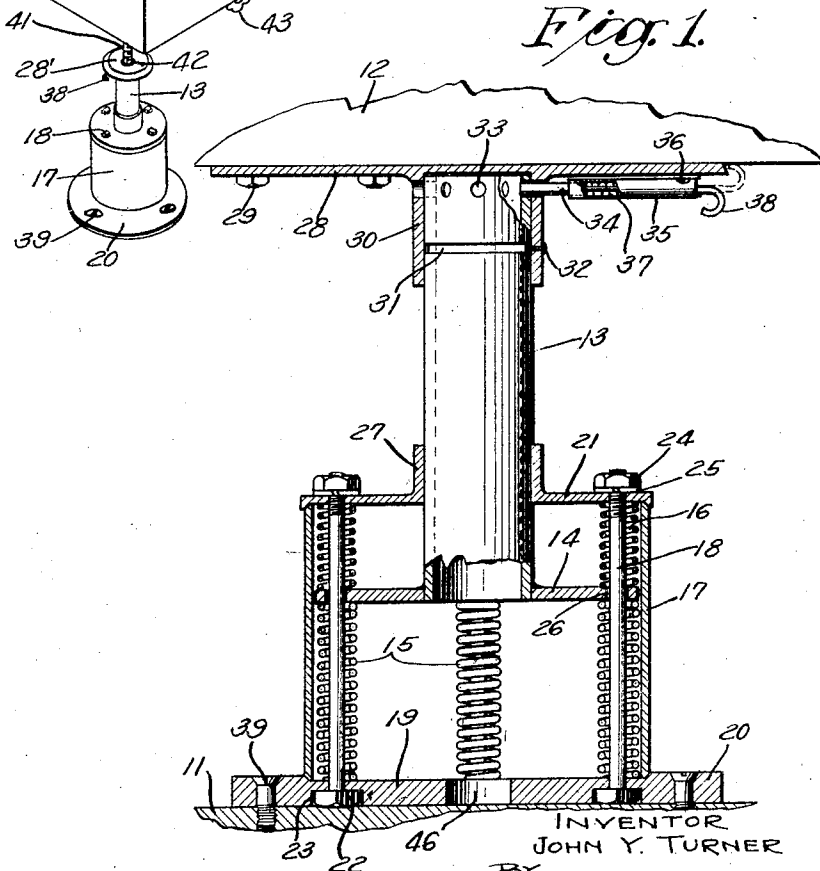
SHOCK ABSORBING SEAT SUPPORT

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*Fig. 2.*



*Fig. 1.*

INVENTOR  
JOHN Y. TURNER

By *Frank R. Graham*  
ATTORNEY

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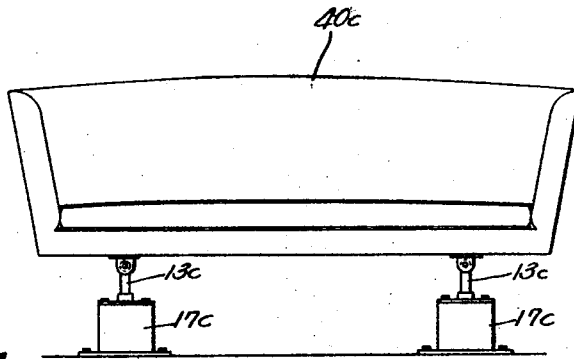
J. Y. TURNER

SHOCK ABSORBING SEAT SUPPORT

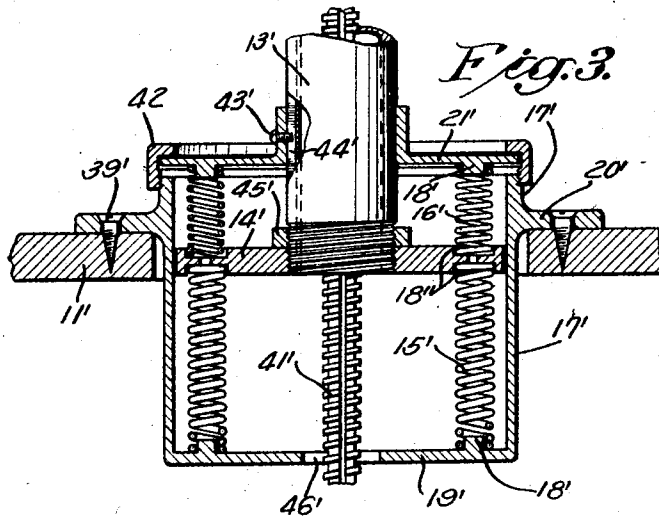
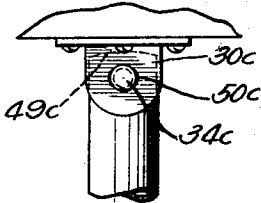
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*Fig. 4.*



*Fig. 5.*



INVENTOR  
JOHN Y. TURNER  
BY  
*Wm. L. Graham*  
ATTORNEY

# UNITED STATES PATENT OFFICE.

JOHN Y. TURNER, OF OCEAN PARK, CALIFORNIA.

## SHOCK-ABSORBING SEAT SUPPORT.

Application filed June 20, 1925. Serial No. 38,536.

As may be inferred from the above title, my present invention relates particularly to the support of seats suitable for use in conveyances; and it is an especial object of this invention to provide resilient means, adapted to be interposed between the floor of automobiles or other cars and the bottoms of seats, in such manner as effectively to absorb shocks that might otherwise be transmitted to the occupants of said seats.

In many types of seats currently provided in automobiles, busses, parlor cars for use on railroads, and the like, loose, spiral wire springs, of a type long used in the support of bed mattresses, are commonly so disposed, beneath seat cushions, as to enable the latter to yield, under the weight of the occupant, relatively to the backs of said seats,—with the result that whenever the car passes across a rut or bump, the coat or other apparel of the occupant is caused to rub up and down relatively to the back of the seat; and it is a primary object of this invention to obviate the mentioned rubbing, with its incidental fatigue, wear and creasing effects, by providing suitable shock-absorbing resilient supports directly beneath each seat (which may contain any suitable cushions) so constructed that the backs and bottoms thereof must always move together; and preferred embodiments of my invention may comprise piston-like members vertically guided within housings containing opposed sets of compression springs, under constant tension, as hereinafter described.

Other objects of my invention, including certain optional features adapting the same to the support of either revolving or bench-like seats or facilitating vertical or rotational or other adjustments thereof, may be best understood from the following description of alternative embodiments, taken in connection with the appended claim and the accompanying drawings, in which

Fig. 1 is a somewhat diagrammatic vertical section showing one of my resilient supports as interposed between a single rotatively adjustable seat and the floor of a car, or the like.

Fig. 2 is a perspective view, showing a support, of a similar general type, as applied to a chair which may be not only rotatable but adjustable in height, and also capable of the resiliently resisted tilting

movements familiar in such revolving chairs as are commonly provided for office use.

Fig. 3 is a view comparable to the lower portion of Fig. 1 but illustrating alternative and optional features hereinafter referred to.

Fig. 4 is an elevational view showing one mode of applying embodiments of my invention to the support of long, bench-like seats, such as are suitable to use in busses, or the like.

Fig. 5 is an enlarged detail view, showing a type of connection suitable for use beneath such bench-like seats as are illustrated in Fig. 4.

Referring to the details of that specific embodiment of my invention illustrated in Fig. 1, 11 may be the floor of a car and 12 may be the bottom of a chair-like or other seat, with which a back (not shown) may be rigidly connected, my shock-absorbing support being shown as interposed between said floor and said seat and as comprising a weight-transmitting post 13, carrying a piston-like enlargement or flange 14, below which are retained a plurality of pairs of oppositely disposed compression springs 15, by which the post 13 and the seat 12 may be resiliently supported.

Above the flange or enlargement 14, I may secure an additional set of lighter compression springs 16, adapted to check the rebound of the post 13; and the enlargement or flange 14 and the mentioned springs may be secured in their intended relationships either by means such as a substantially cylindrical housing 17, or by means such as bolts 18, shown as extending between a base plate 19 (integral with a securing flange 20) and an apertured cover plate 21,—the bolts 18 being shown as provided with squared heads 22, held against rotation by interfitting within corresponding apertures 23, and the nuts 24, at the upper ends thereof being shown as provided with split washers 25, tending to prevent said ends from working loose.

In this embodiment of my invention, the flange or enlargement 14 is shown as provided with ample apertures 26, to permit vertical movement relatively to the fixed bolts 18; and either the enlargement 14 or an upwardly extending collar 27 on the cover 21, or both of these, may be employed to hold the post 13, or its equivalent, in a

substantially upright position, or in parallelism with said bolts 18, while permitting a vertical reciprocation thereof.

The upper end of the post 13 may be secured to a chair or seat bottom in any preferred way, as by means comprising a circular or other plate 28, shown as secured by bolts 29 and as comprising a sleeve or collar 30, adapted to fit over the upper end of said post. As shown, the said post may optionally be provided with means such as an annular groove 31, in which a screw 32 may project in such manner as to permit relative rotation, although preventing a separation of the mentioned parts; and the upper end of the post 13 may alternatively or additionally be provided with means such as a circumferential row of apertures 33, engageable by a horizontal pin 34, adapted not only to prevent separation of parts but to hold the same in any predetermined rotative relationship. As shown, the pin 34 may be longitudinally movable within a guide 35, shown as secured by screws 36, this said guide being adapted to house a spring 37 normally pressing said pin inward; and a reduced extension 38, at the outer end of said pin, may optionally be recurved in such manner as to adapt the same to use in withdrawing the pin, or in holding the same, as by the engagement indicated in dotted lines, in a withdrawn position.

In Fig. 2 I show a cylindrical housing 17 as secured to a floor by means of screws 39 extending through the flange 20; and I show an upholstered revolving chair body 40 as supported above a plate 28' by means comprising a screw 41. It will be obvious that this screw, whether or not the same is provided with a vertical slot 42, may be used, in a known manner, in predetermining the elevation of the seat 40, and that, assuming the post 13 to be held against relative rotation by means such as are illustrated in Fig. 1 (including bolts 18) and a horizontal pin outwardly terminating in the handle 38, the chair upon the post 13 may either be locked in a predetermined position or permitted freely to rotate upon a vertical axis; and means such as a hand wheel 43, connected with adjustable parts well known to the manufacturers of revolving chairs, may optionally be used, in conjunction with the described novel parts, to predetermine the compression of springs tending resiliently to resist a tilting movement of the chair body relatively to the screw 41 and the post 13; but it will be understood that the features of invention disclosed in Fig. 1, or their equivalents, may be used either in conjunction with or independently of those features of revolving-chair construction last referred to.

In Fig. 3 I show the floor 11' as apertured to receive a cylindrical housing 17' integral

with a bottom closure 19' carrying the flange 20' at a comparatively high elevation. In this construction, no bolts being employed, the springs 15' and 16' (any desired number of such springs being symmetrically disposed within the housing 17') are shown as held in place by means of projections 18' and/or sockets 18''; and the top member 21' may be retained by means such as a threaded collar 42',—which may be nickel plated in an attractive manner and may serve also as a means for adjusting the tension of the mentioned springs. It will be obvious that the flange 20', or its equivalent, shown as retained by screws 39', may be secured either above or below a floor, or the like; and relative rotation of the post 13' may be prevented by means such as a screw 43' entering a slot 44'. I do not consider it necessary to make the flange 21' adjustable relatively to the cylinder 17'; but, if desired, the enlargement 14' may be threaded on the post 13', to permit longitudinal adjustment (an optional lock nut being shown at 45') and, in any case, a central aperture may be provided, as at 46, Fig. 1, (or 46', Fig. 2) to permit the screw 41 (or 41') when employed, to extend through the bottom 19 (or 19').

In Figs. 4 and 5 I show a bench-like seat 40° as supported upon a plurality of posts 13° extending from cylinders 17°; and the upper ends of the mentioned posts may optionally be shortened or rounded, as at 49°, Fig. 7, and connected by horizontal pins 34°, shown as extending through openings 50° in parallel projecting lugs 30°, said openings being of sufficient horizontal diameter to permit some pivotal movement, such as may result from the unequal depression of the respective ends of the seat 40°.

It will be noted that all forms of my invention are suitable for use with seats comprising a back rigidly connected with a bottom and that this invention is suitable for use with a wide variety of seats within the above description; but I emphasize in conclusion the fact that various features of my invention are capable of independent use, and the fact that numerous additional modifications thereof might easily be devised by those skilled in the art to which this case relates, without the slightest departure from the spirit and scope of this invention, as the same is indicated above and in the following claim.

I claim as my invention:

A shock-absorbing seat support comprising: a weight-transmitting post provided with means for its attachment beneath a seat and with a piston-like enlargement at its lower end; a plurality of stationary guide bolts extending through said enlargement; a plurality of compression springs disposed beneath said enlargement; an ap-

ertured plate for holding said post in substantial parallelism with said bolts; resilient depressing means disposed above said enlargement; and a housing to enclose said springs, said housing being provided with a bottom and with an apertured cover engageable by said compression springs, between which bottom and cover said enlarge-

ment is retained,—the mentioned enlargement, bottom cover and springs being held in their assembled relationships by said guide bolts. 10

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 13th day of June 1925.

JOHN Y. TURNER.