More comfortable seats....

In a previous newsletter I talked about the manufacture of the rear seats for Morris cars, in particular the company that made the springs for the car. Looking through various patent applications for Morris cars there are a number of patents, both in the UK and in the US which relate to seats and their comfit. In the patent application which follows, issued in 1934, the proposal outlines changes to the way seats are made and how this can improve the comfort. An earlier 1932 patent application proposed a new seating arrangement in the rear of the car - allowing for a seat to accommodate a third person, in an area designed for two.

PATENT SPECIFICATION

Application Date : Sept. 15, 1934. No. 26503/34. **442,785**

Complete Specification Left : July 11, 1935.

Complete Specification Accepted : Feb. 17, 1936.

PROVISIONAL SPECIFICATION

Improvements relating to the Backs of Vehicle Seats

We, MORRIS COMMERCIAL CARS LIMITED, a Company registered under the Laws of Great Britain, of Adderley Park Works, Adderley Park, Birmingham, 8, and WILLIAM RICHARD MORRIS (Lord Nuffield), British Subject, of Cowley, Oxford, do hereby declare the nature of this invention to be as follows:—

This invention relates to the backs of vehicle seats, and particularly to the backs of the driving seats used in motor road vehicles and especially in commercial motor vehicles, such as lorries, trucks, omnibuses and the like.

The principal object of the present invention is to provide a vehicle seat-back, and particularly the back of a motor vehicle driving seat, which is anatomically and hygienically shaped so as, in use, to correctly fit an average person's back and give an adequate support thereto, thereby resulting in a maximum of comfort, minimisation of fatigue and strain, and causing the body to assume a naturally correct posture so that displacement or disturbance of the internal organs, and the ill-effects resulting therefrom, are avoided, thus ensuring a hygienic sitting position. A further object is to provide improved means for adjusting the height of the seat back in relation to the seat proper.

According to the invention, a vehicle seat is formed and shaped with a convexly-curved forward bulge, protuberance or undulation adapted, in use, to fit and give a firm support to the curvature of the "small" or posterior lumbar region of an average person's back, and which, while being resilient or yielding to a certain extent, has a very considerable degree of firmness or hardness, greater than that of other portions of the seat-back, so as to give a comparative rigid and definite resistance and support and tending to cause the person's body to assume a natural and hygienic position.

The seat-back may have a spring interior, the springs within the said forward bulge, protuberance or undulation being stronger or stiffer than those employed at other parts of the seat-back; or the seat-back may be of a pneumatic construction, with a separate air-chamber for supporting the "small" of a person's back, such air-chamber being inflated to a higher pressure than the air chamber or chambers in the other part of the seat-back.

Also, according to the invention, the height of the seat-back in relation to the seat proper is adapted to be adjusted by means of an inclined peg or a stationary part at each side of the seat, adapted to engage one or other of a series of vertically spaced inclined holes in a part attached to the seat-back.

In carrying out the preferred form of the invention in connection with the back of a motor-vehicle driving seat, the said seat-back comprises an interior spring body or support, of mattress-like form, comprising a flat stationary back frame, a forwardly-spaced separate wire frame filled with woven-wire mesh, and a series of horizontally-disposed coiled compression springs interposed between the rear frame and the mesh filling of the front frame, being secured thereto at their ends. The front wire frame is made of spring wire and is shaped, in a vertical direction, to fit the curvature of the "small" or posterior lumbar region of an average person's back, the end or side bars of the said front frame being bowed or curved forwardly, at or about the middle of their depth, giving to the wire mesh filling a correspondingly forwardly-bowed convex form and producing, across the full width of the seat-back, at a suit-height to fit the curve of the driver's back, a transverse horizontal forward bulge, protuberance or undulation. There may conveniently be four horizontal rows of coiled springs between the back and front frames, namely, two vertically-spaced rows acting upon the said bulge or protuberance, respectively above and below the greatest depth thereof, and two other rows respectively at the top and bottom edges of the two frames. The two middle rows of springs, which act upon the bulge or protuberance of the front frame, are longer than the top and bottom rows, and are made of a stouter gauge of wire, being

thus stronger, stiffer and less yielding than the top and bottom rows, so as to offer considerable resistance to compression. The above-described spring interior is enclosed by a covering of leather or fabric, with a suitable padding between the mesh front and the said covering and the completed seat-back is mounted in relation to the seat proper so that, in use, the forward bulge or protuberance correctly fits the curvature of the " small " of the driver's back and owing to the two middle rows of springs possessing considerable strength and stiffness they give a comparatively firm or rigid support to the said portion of the driver's back, although the upper and lower springs, being weaker, can be compressed relatively to the middle springs, and the front wire boundary frame can flex or bend, during such compression of the upper and lower springs, without materially affecting the compression of the main middle springs. Initially, when the seat is not in use, the forward curvature of the bulge or protuberance of the seat-back may be rather flatter than the normal concave curvature of the " small " of an average person's back, but when the seat-back is in use, and the driver's back is applied thereto, the main springs above and below the greatest depth of the bulge, will be slightly compressed, giving a smaller radius to the curvature of the said bulge, and causing it to accurately fit the driver's back and give a firm support thereto, tending to cause the driver's body to maintain a natural position, obviating disturbance or displacement of the internal organs. The upper part of the seat back may extend to any desired height and it may be concavely curved or otherwise shaped to fit the body. To enable the seat-back to be adjusted vertically in relation to the seat proper, and so allow the bulge or protuberance to be brought into a proper position for correctly fitting the backs of different persons, it is adapted to be adjustably hung from a pair of inclined pegs at opposite sides of the seat, said pegs being adapted to be engaged with one or other of a series of vertically-spaced holes in laterally-projecting plates attached to opposite sides of the rigid rear frame of the seat-back. These plates may have a vertical row of spaced holes drilled through a thickened or reinforced edge portion in a downwardly and rearwardly inclined direction, corresponding to the inclination of the pegs, so that the plates slide down the pegs and are self-retaining thereon. The plates may be secured to the rear frame of the seat-back by any convenient means, such as by lugs on the plates bent around the wires of the frame, and by welding, if necessary.

In a modification, the seat-back may be of a pneumatic construction, comprising an inflatable main outer air-chamber which may extend around the top and sides and, if desired, partly down the middle; and a separate inflatable air-chamber situated and shaped to fit the concave curvature of the " small " of a person's back, this second air-chamber being adapted to be inflated to a higher pressure than the main or outer air-chamber, so as to offer a considerable and definite support or resistance to that portion of the body where it is needed.

Dated this 14th day of September, 1934.
H. N. & W. S. SKERRETT,
24, Temple Row, Birmingham, 2,
Agents for Applicants.

COMPLETE SPECIFICATION

Improvements relating to the Backs of Vehicle Seats

We, MORRIS COMMERCIAL CARS LIMITED, a Company registered under the Laws of Great Britain, of Adderley Park Works, Adderley Park, Birmingham, 8, and WILLIAM RICHARD MORRIS (Lord Nuffield), British Subject, of Cowley, Oxford, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to the backs of vehicle seats, and particularly to the backs of the driving seats used in motor road vehicles, especially commercial motor vehicles, such as lorries, trucks, omnibuses and the like.

The principal object of the present invention is to provide a vehicle seat-back, and particularly the back of a motor vehicle driving seat, which is anatomically and hygienically shaped so as, in use, correctly to fit a person's back and give adequate support thereto, thereby resulting in a maximum of comfort, minimisation of fatigue and strain, and causing the body to assume a naturally correct posture so that displacement or disturbance of the internal organs, and the ill-effects resulting therefrom, are avoided, thus ensuring a hygienic sitting position. A further object is to provide improved means for adjusting the height of the seat-back in relation to the seat proper.

It has been proposed to provide a chair

or seat-back with a loose cushion or pad having a forward bulge, protuberance or undulation adapted to fit the small of the back of the user with light coiled springs inside the deeper middle portion of said protuberance only, the rest of the cushion being stuffed with any suitable upholstery stuffing; or the entire cushion being so stuffed, without the use of springs. Also, in Specification No. 5706 of 1891, it has been proposed to provide a seat-back comprising a rigid frame having forwardly-projecting end members curved to the shape of the intended surface and across which woven-wire fabric is secured, with coiled springs, of the form used in spring mattresses and cushions, between the lower part of this fabric and a rigid back part so as to support a forward bulge or protuberance at the lower part of the mesh; but the said bulge or protuberance was situated opposite the lower end of a back bar of the frame, which bar was stated to have its lower edge near the surface of the bare seat when without the seat or cushion. Consequently the bulge or protuberance would not be in a position to fit the lumbar region or "small" of the user's back.

Also, in Specification No. 284,501, it has been proposed to construct a seat back with a forward bulge at the lower part, such seat back comprising flexible flat metal spring strips bent to suitable contours according to the particular shape desired for the upholstery, with springs of various lengths or depths attached to each opposite side of said strips whereby the said strips in combination with the said springs are made to form the required contours of the spring-cushioned upholstery. The said specification also refers to the springs being of variable thickness or stiffness.

According to the invention, a vehicle seat-back is formed with a convexly-curved forward bulge, protuberance or undulation, adapted, in use, to fit and give a firm support to the posterior lumbar region or "small" of the occupant's back, the said bulge, protuberance or undulation, whilst being, to a certain extent, resilient or yielding, having a very considerable degree of firmness or hardness greater than that of other portions of the seat-back, so as to give a comparative rigid and definite resistance and support. The seat-back may have a spring interior, the forward bulge, protuberance or undulation, being associated with, or caused by, springs which are stronger or stiffer than those employed at other parts of the seat-back.

Also according to the invention, a vehicle seat back has a convexly-curved forward bulge, protuberance or undulation situated and shaped to fit the posterior lumbar region or "small" of a person's back, said bulge, protuberance or undulation being formed by an inflatable air chamber adapted to be inflated to a degree of hardness or firmness greater than that of other portions of the seat back, so as to give a comparatively rigid and definite resistance and support.

Means may be employed for adjusting the seat-back in height to bring the bulge or protuberance to the right position, according to the size of the occupant of the seat, and such adjustment may be effected by engaging pegs or studs on the one part (either on the seat-back or on a relatively fixed support) with slots or holes in the other part.

Figure 1 of the accompanying drawings represents a vertical section through the back of a motor vehicle driving seat the said seat-back being constructed in accordance with this invention and provided with a spring interior.

Figure 2 is a perspective view of the seat-back with the outer covering removed.

Figure 3 represents a rear view of the spring frame, of the seat-back, the covering of the latter being removed, showing the apertured end plates which enable the seat-back to be adjusted in height.

Figure 4 illustrates a cross-section on the line x—x, Figure 3, showing how the end-plate is attached to the frame.

Figure 5 represents a section on the x^1—x^1, Figure 3, showing also one of the pegs for supporting the seat-back.

Figure 6 shows a modification in which supporting studs are attached to the springs of the seat-back by metal plates.

Figure 7 is a section on the line x^2—x^2, Figure 6.

Figure 8 shows a modified form of seat-back, in which the latter is of a pneumatic construction.

Figure 9 represents a cross-section on the line x^3—x^3, Figure 8.

Referring to Figures 1 to 5 of the drawings, the improved seat-back comprises an interior spring body or support, of mattress-like form, comprising a flat stationary back frame 1, a forwardly-spaced separate wire frame 2 filled with woven-wire mesh 3, and a series of horizontally-disposed coiled compression springs 4 and 5 interposed between the rear frame 1 and the mesh filling 3 of the front frame, being secured thereto at their ends. The front wire frame 2 is made of spring wire and is shaped, in a vertical direction, to correspond substantially to the curvature of the "small" or posterior lumbar region of an average

442,785 COMPLETE SPECIFICATION

2 SHEETS
SHEET 1

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Fig. 1.

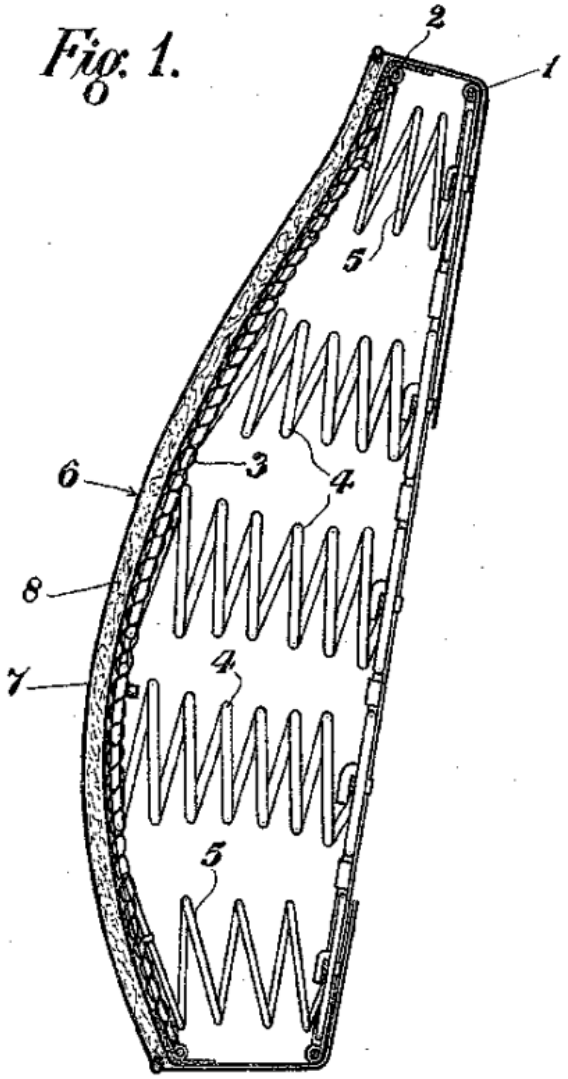
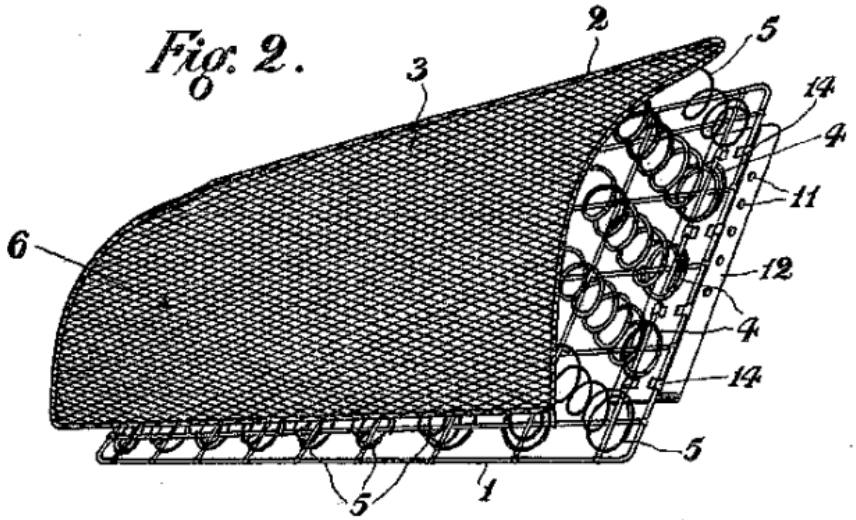


Fig. 2.



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[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 3.

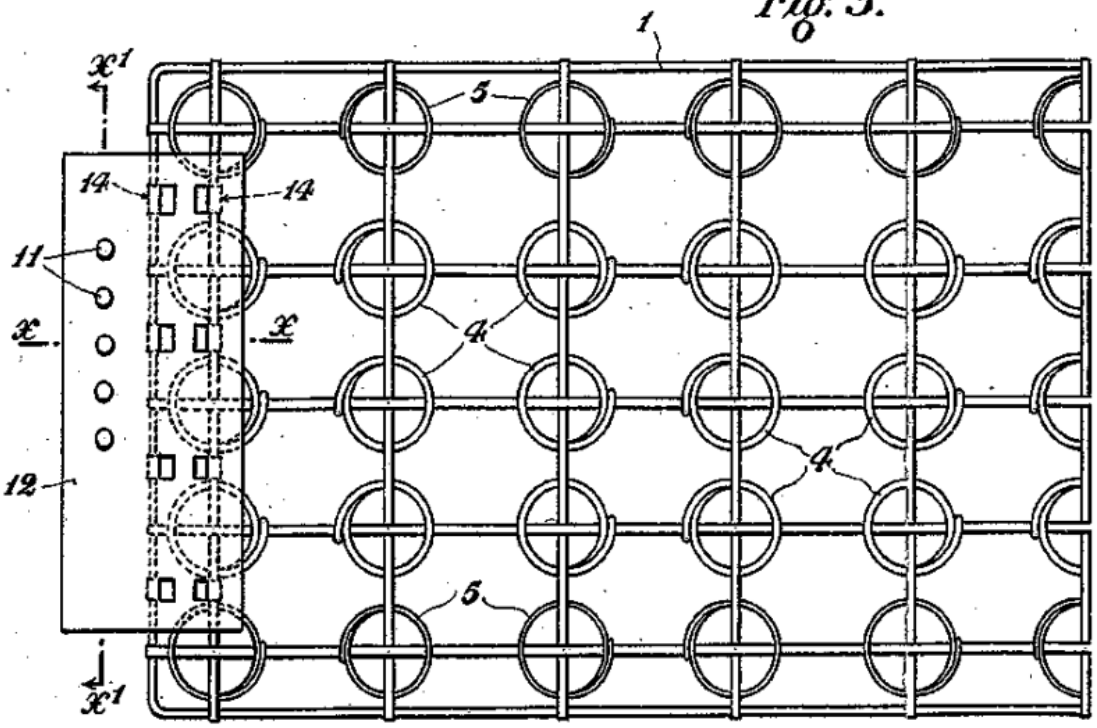

Fig. 6.

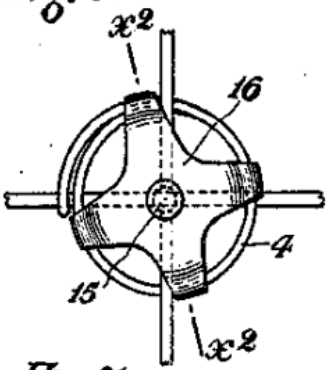

Fig. 5.

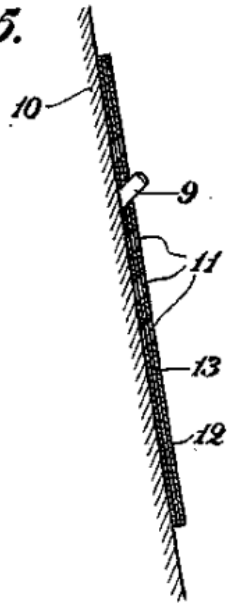

Fig. 4.

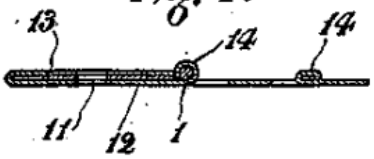

Fig. 7.