March 9, 1943. J. M. DORTON 2,313,130

FLOATING MOTION CUSHION FOR VEHICLES, FURNITURE, AND THE LIKE

Filed Aug. 19, 1940 2 Sheets-Sheet 1

FIG. 1.

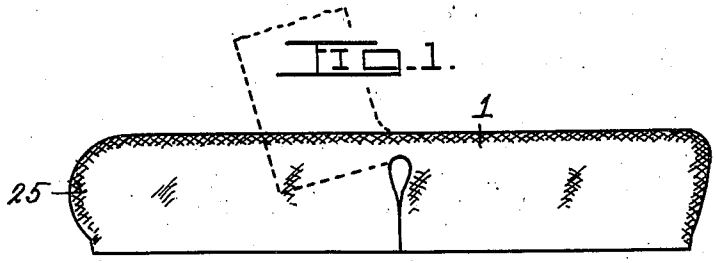


FIG. 4.

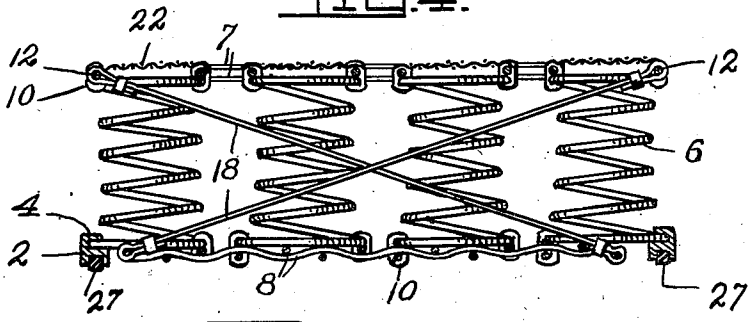


FIG. 5.

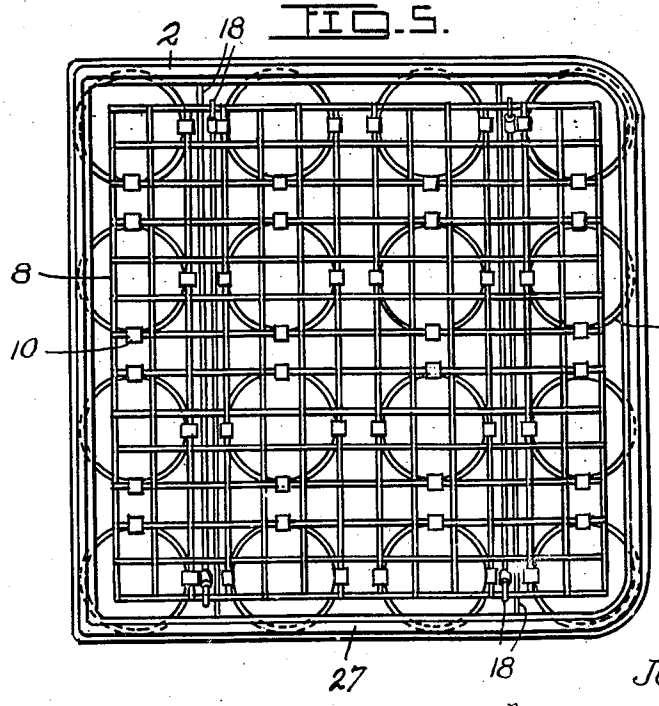


FIG. 6.

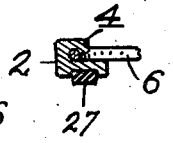
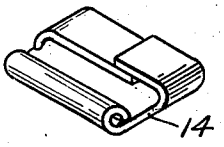


FIG. 7.



Inventor:
John M. Dorton,
By F. G. Fischer,
Attorney.

March 9, 1943. J. M. DORTON 2,313,130

FLOATING MOTION CUSHION FOR VEHICLES, FURNITURE, AND THE LIKE

Filed Aug. 19, 1940 2 Sheets-Sheet 2

FIG. 2.

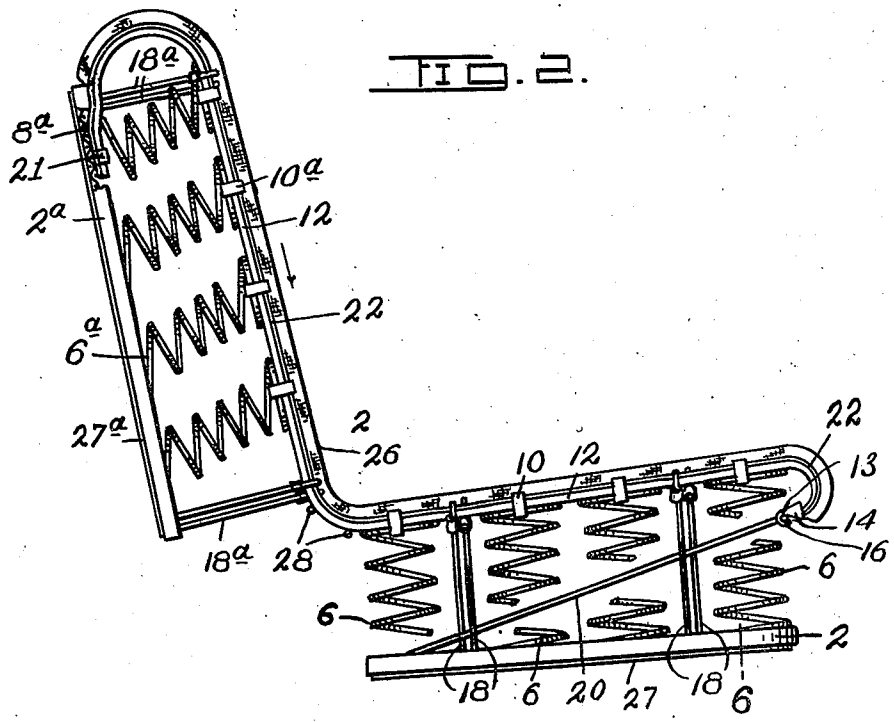
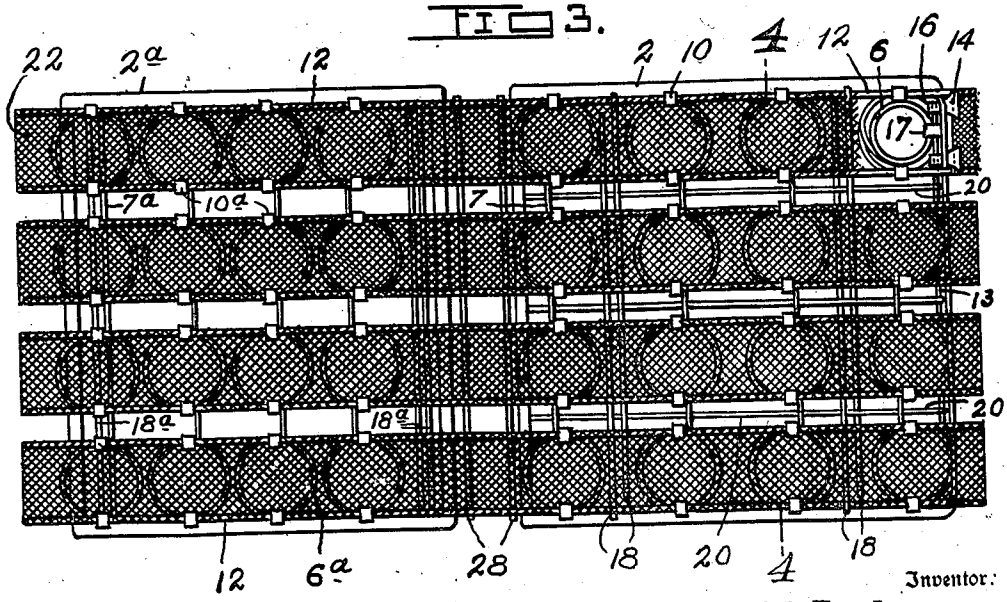


FIG 3.



Inventor:
John M. Dorton,
By
F. G. Fischer,
Attorney.

Patented Mar. 9, 1943

2,313,130

UNITED STATES PATENT OFFICE

2,313,130

FLOATING MOTION CUSHION FOR VEHICLES, FURNITURE, AND THE LIKE

John M. Dorton, Bonner Springs, Kans.

Application August 19, 1940, Serial No. 353,256

2 Claims. (Cl. 155—179)

My invention relates to cushions for use with various types of furniture and vehicles, such, for example, as beds, chairs, davenports, motor vehicles, railway coaches and the like.

An important object of the invention is the provision of a cushion arranged to provide a floating motion, so that when installed in motor vehicles the jolts and jars incidental to driving over a rough road will be absorbed by the cushion.

A further object of the invention is to provide a cushion in which parts of the seat and back portions of the cushion are adapted to move up and down in unison to eliminate friction between the cushion and the clothing and thereby prevent the latter from creeping upward to an uncomfortable position.

Another object of the invention is to obtain the maximum efficiency of a plurality of coil springs forming part of the back of the cushion.

Other objects will hereinafter appear and in order that the invention may be fully understood reference will now be had to the accompanying drawings, in which:

Fig. 1 is a side elevation of the cushion with the back unit in a horizontal position in full lines and in raised position in dotted lines.

Fig. 2 is a side view with all of the upholstery removed excepting a pad.

Fig. 3 is a plan view of the cushion with the back unit lowered to a horizontal position and the pad and some of the other parts removed.

Fig. 4 is a cross section on line 4—4 of Fig. 3, with some of the parts removed.

Fig. 5 is an inverted plan view of the seat unit of the cushion with some of the parts removed.

Fig. 6 is an enlarged fragmentary cross section on line 6 of Fig. 2.

Fig. 7 is a detail of one of a plurality of hinge members employed in carrying out the invention.

Referring in detail to the different parts, 1 designates the cushion which has a seat unit provided with a hollow rectangular frame 2 having a continuous marginal flange 4 to which the lower coils of a plurality of marginal springs 6 are firmly secured. Said lower coils, together with the lower coils of a plurality of intermediate springs 6, are also secured to the upper surface of a woven wire mat 8 with suitable means such as clips 10.

The coil springs 6 are arranged in equally spaced rows and connected at their upper ends with links 7 to restrict lateral sway of the upper part of the seat unit. The upper coils are secured with additional clips 10 to wire cables 12 which are arranged in parallelism and extend longitudinally of the cushion to yieldably connect the seat and back units together, so that the back unit may be folded upon the seat unit, or swung backward to a horizontal position, Fig. 1, or adjusted to any point between the folded and horizontal positions.

The forward portion of the cables 12 are curved downward and rearward and secured to respective members 14 which are hingedly connected as indicated at 16 to a transverse cable 13 secured as with clips 17 to the intermediate coils of the first row of seat springs 6. The links 7 are assisted in restricting side sway of the upper part of the seat unit by crossed stays 18, (best shown by Fig. 4), secured at their lower ends to opposite sides of the relatively stationary wire mat 8 and at their upper ends to the respective sidemost cables 12.

Forward movement of the upper part of the seat unit is limited by stays 20 (best shown by Fig. 2), secured at their lower ends to the rear end of the wire mat 8 and at their upper ends to the transverse cable 13. The stays 18 and 20 are flexible to permit expansion and contraction of the springs 6.

The back unit of the cushion is of substantially the same construction as the seat unit as is evident by corresponding reference numerals with exponents *a*. An important difference however resides in the arrangement of the coil springs 6*a* which are normally inclined upward and forward from the back frame at an angle substantially greater than 90 degrees, so that when the forward portion of the springs 6*a* are drawn downward as indicated by the arrow, Fig. 2, by the cables 12 when actuated by the weight of a person occupying the seat said springs will assume an angle of approximately 90 degrees in which position full benefit of their maximum resiliency may be had.

The upper rear ends of the cables 12 are curved rearward and downward and secured by suitable means such as clips 21 to the wire mat 8*a*. The cables 12 are arranged in pairs and each pair is connected with a strip of wire netting 22 which extends preferably the full length of the cables to which they are secured at intervals with the clips 10 and 10*a*. The wire netting 22 serves to hold the cables 12 in spaced relation and also present a relatively broad surface to the upholstery 25 which includes a pad 26. The lower margin of the upholstery 25 is tacked or otherwise suitably secured to wood strips 27, 27*a*, embedded in the frames 2 and 2*a*, respectively. In order to

prevent the upholstery **25** and the pad **26** from bulging between the seat and back units, I secure the upholstery and the pad to transverse cables **28** by stitching or other suitable means, not shown. The transverse cables **28** are welded or otherwise suitably secured to the longitudinal cables **12** and assist in preventing side sway of the cushion. The upholstery is sufficiently flexible to permit the coil springs **6** and **6***a* to freely expand and contract.

In practice the seat and back frames **2** and **2***a*, respectively, are held in place by the frame of the furniture in which they are installed, examples of which are shown in my copending applications filed July 13, 1939, Serial No. 284,264, and May 21, 1940, Serial No. 336,383, but the arrangement of the coil springs **6** and **6***a* and the cables **12** allows for free upward and downward and backward and forward movements which in effect provides a floating motion.

From the foregoing description it is apparent that I have provided a cushion which is well adapted for the purpose intended, and while I have shown a preferred form of the invention I reserve all rights to such other forms and modifications thereof as properly fall within the spirit and scope of the invention as claimed.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:

1. A cushion comprising seat and back units, coil springs fixed at their lower ends to the seat unit, coil springs fixed at their rear ends to the back unit, longitudinal cables arranged side by side and extending over the seat and back springs, the rear ends of said cables being curved rearward and downward and secured to the back unit, the front ends of said cables being curved downward and rearward towards the front row of seat springs, a transverse cable secured to the front row of seat springs, connecting members hinged to said transverse cable and firmly secured to the front ends of the longitudinal cables, means for securing the longitudinal cables to the upper coils of the seat spring, means for securing the longitudinal cables to the front coils of the back springs, and suitable upholstery covering the springs and the cables.

2. In a cushion, seat and back units provided with a plurality of coil springs arranged in rows, a pair of longitudinal cables extending over each row of coil springs and flexibly connecting the units so that the back unit may be swung forward or backward independently of the seat unit, said cables being bent at their rear ends and secured to the back frame and bent downward and rearward in front of the foremost seat springs, means connecting the cables to the upper ends of the seat springs and the forward ends of back springs, a transverse member fixed to the foremost seat springs, and means hingedly connecting the front ends of the cables to said transverse member.

JOHN M. DORTON.