The main objects of this invention are:

First, to provide a spring cushion structure which is well adapted for the modern types of pleasure automobiles in which there is little head-
room and frequent obstructions or raised por-
tions in the seat platform or support portion of the vehicle are present.

Second, to provide a spring construction having these advantages, which may be readily
adapted to meet particular conditions or require-
ments of the character outlined.

Third, to provide a structure having these ad-
Advantages, which is comparatively simple and eco-
nomical in its parts and at the same time very
strong and rigid.

Objects pertaining to details and economies of
my invention will definitely appear from the de-
scription to follow. The invention is defined in the
claims.

A structure embodying the features of my in-
vention is clearly illustrated in the accompanying
drawings, in which:

Fig. 1 is an end elevation partially in vertical
transverse section of a seat cushion embodying
the features of my invention, a portion of the seat
platform or vehicle bottom being convention-
ally illustrated.

Fig. 2 is an inverted perspective view of a
structure embodying the features of my inven-
tion with the upholstery omitted.

Fig. 3 is a fragmentary perspective view of
portions of the springs supporting rods or wires.

Fig. 4 is an enlarged fragmentary view show-
ing the relation of the springs supporting cross
strips, the spring supporting rods and the frame,

Fig. 5 is an enlarged detail section on line 5—5
of Fig. 4.

Fig. 6 is an enlarged fragmentary perspective
view showing the connection between the cross
rod and border frame.

In the embodiment of my invention illustrated,
the body springs 1 are of the cylindrical type and
arranged in pocketed strips 2, the springs being
arranged in rows and the springs of the rows
transversely aligned. The tops of the springs are
arranged in the same plane, certain of the
springs, as the end springs 3, in the embodiment
illustrated and an intermediate group of springs
4, being shorter than the other springs so that
their lower ends are disposed in planes above
the plane of the lower ends of the longer springs.
A top border frame 5 is provided, but as this
forms no part of my present invention it is not
described or detailed herein.

In the embodiment illustrated, I provide a bot-
tom border frame consisting of the rear border
frame member 6 and the front border frame
member 7. These are of 8 cross section, pro-
vinding an upholstery securing channel 8, that of
the rear border frame member facing outwardly
and that of the front border frame member fac-
ing downwardly. The inwardly facing channels
9 of these border frame members are adapted to
receive and be clamped upon parts supported
thereby, which will appear as the description pro-
ceeds.

The rear border frame member has upwardly
offset end portions 10 at each end terminating in
arms 11 constituting border frame end members.

The front border frame member 7 is disposed in
a plane substantially below the plane of the arms
11 and terminates in rearwardly projecting arms
12 connected to the arms 11 by the wires 13
crimped within the inner channels of the frame
members.

I provide corrugated cross strips 14, 15 and
16 formed as stampings, the rear ends of which
are secured to the border frame member 6 while
their front ends have downturned arms 17 se-
cured to the front frame member, the inwardly
facing channels of the members being clamped
upon these cross pieces. For this purpose, the
ends of the cross pieces have triangular openings
47, leaving end webs 48 which are clamped by
upset portions 49 of the 8-channel border frames
8 to the latter. The end webs are bent at 50 to
the shape of the channel to thereby strengthen
the connections. The cross piece 16 has an up-
wardly offset portion 18 to bring it into approxi-
mately the plane of the lower ends of the short
intermediate springs 4. The cross pieces 14 and
16 have downward offsets 19 which serve as an-
choring members engaging a part to hold the
seat in position, the retaining part not being
illustrated.

The springs are supported by spring support-
ing wires or rods 20, 21, 22, 23, 24, and 25.
Separate numerals are used for these parts to fa-
cilitate description. These supporting wires or
rods are arranged across the cross strips and se-
cured thereto, the cross strips having clamping
tongues 27 for anchoring the rods other than the
rod 20 which has loop-like offsets 28 intermediate
its ends clamped by the rear border frame mem-
ber 6.

The supporting rod 23 has arms 29 at its ends
terminating in downwardly offset portions 30
clamped by the front border frame member 7 so
that these arms constitute part of the border
frame. The ends of the supporting wire or rod
24 are secured to these arms by the clips 31. The ends of the supporting wires 20, 21, 22 and 23 are clamped to the rear border frame member 6. The wire 25 has a downwardly extending U-shaped offset 26 provided with side arms 33. The offset is clamped by the front border frame member 7. The outer reaches of the wire 25 are extended into end members 34 which are attached to the top border frame member 35. These end members are clamped by the end members of the bottom border frame member and constitute supports for the end springs.

The ends of the spring supporting members 20 and 21 are upwardly offset at 35 while an intermediate portion of the supporting members 22 and 23 is upwardly offset at 36, thereby bringing them into approximately the plane of the bottom of the shorter springs. The supports 21, 22, 23 and 24 are arranged intermediate the rows of springs.

The bottom coils of the springs are secured to these supports by clips 37, the rods having crimps 38 at suitable intervals so that they may be engaged by the clips, thereby preventing the sliding of the clips on the rods. A clip is not provided for each spring, but they are located at such intervals that each spring is effectively anchored to prevent its sliding relative to the rods. The cushion is provided with a plurality of spaced diagonal stay wires or braces 39 extending from the rearmost support 21 upwardly and forewordly to the front member 7 of the top border frame 5, the wires being turned parallel to the member 40 at 41 and secured thereto by clips 42.

With this arrangement, the bottom of the spring structure can be formed to accommodate irregularities in the platform or bottom of the cushion, as indicated at 35, the springs being effectively supported throughout the structure.

My improved arrangement of parts, while simple and economical, is nevertheless strong and rugged by virtue of the crimps 38 in the rods, the clamping tongues 27, and the connection between the border frames and the cross strips, including the triangular opening and the bends at the ends of the cross strips in the channel.

The upholstery indicated at 40 is provided with skirt portions 41 and 42 which are clamped in the rod channels of the cross bars for securing the upholstery, such as tacking inserts, may be employed. I have not illustrated such a structure, as it is believed that this disclosure will enable those skilled in the art to which the invention relates to embody or adapt my improvements as may be desired.

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

1. A spring cushion structure comprising rows of springs disposed with the springs of the rows in substantially the same plane, certain of the springs at each end and certain of the inner springs being of less length than the other springs so that the lower ends of the shorter springs are in planes above the plane of the longer springs, a rear bottom border frame member having upwardly offset portions at each end terminating in border frame end members, the intermediate bottom supporting rods being disposed between the rows of springs and secured at their ends to said border frame end members, and clips connecting said springs to said supporting rods.

2. A spring cushion structure comprising rows of springs disposed with the springs of the rows in substantially the same plane, certain of the inner springs being of less length than the other springs so that the cross bars having upwardly offset portions lying approximately in substantially the same plane, one of said cross bars having upwardly offset portions lying in approximately the plane of the bottom of the shorter springs, a rear bottom border frame member having upwardly offset portions at each end terminating in border frame end members, and clips connecting said springs to said supporting rods.
having their rear ends secured to said rear border frame member and their front ends turned downwardly and secured to said front border frame member, one of said cross bars having an upwardly offset portion lying in approximately the plane of the bottoms of said shorter inner springs, longitudinal spring supporting rods supported by said cross bars, certain of said rods having upwardly offset portions lying in approximately the planes of the bottom of the shorter springs, and clips connecting said springs to said supporting rods.

4. A spring cushion structure comprising rows of body springs, certain of the springs being of less length than the other springs so that the lower ends of the shorter springs are in planes above the plane of the lower ends of the longer springs, a rear bottom border frame member terminating in border frame end members, a front bottom border frame member and their front ends turned downwardly and secured to said front border frame member, longitudinal spring supporting rods supported by said cross bars, certain of said rods having upwardly offset portions lying in approximately the planes of the bottom of the shorter springs, and clips connecting said springs to said supporting rods.

5. A spring cushion structure comprising rows of body springs, certain of the springs being of less length than the other springs so that the lower ends of the shorter springs are in planes above the plane of the lower ends of the longer springs, a rear bottom border frame member terminating in border frame end members, a front bottom border frame member and their front ends turned downwardly and secured to said front border frame member, longitudinal spring supporting rods supported by said cross bars, certain of said rods having upwardly offset portions lying in approximately the planes of the bottom of the shorter springs, and clips connecting said springs to said supporting rods.

6. A spring cushion structure comprising rows of body springs, certain of the springs being of less length than the other springs so that the lower ends of the shorter springs are in planes above the plane of the lower ends of the longer springs, a rear bottom border frame member terminating in border frame end members, a front bottom border frame member and their front ends turned downwardly and secured to said front border frame member, longitudinal spring supporting rods supported by said cross bars, certain of said rods having upwardly offset portions lying in approximately the planes of the bottom of the shorter springs, and clips connecting said springs to said supporting rods.

7. A spring cushion structure comprising rows of body springs, certain of the springs being of less length than the other springs so that the lower ends of the shorter springs are in planes above the plane of the lower ends of the longer springs, a rear bottom border frame member terminating in border frame end members, a front bottom border frame member and their front ends turned downwardly and secured to said front border frame member, longitudinal spring supporting rods supported by said cross bars, certain of said rods having upwardly offset portions lying in approximately the planes of the bottom of the shorter springs, and clips connecting said springs to said supporting rods.

8. A spring cushion structure comprising rows of body springs, certain of the springs being of less length than the other springs so that the lower ends of the shorter springs are in planes above the plane of the lower ends of the longer springs, a rear bottom border frame member terminating in border frame end members, a front bottom border frame member and their front ends turned downwardly and secured to said front border frame member, longitudinal spring supporting rods supported by said cross bars, certain of said rods having upwardly offset portions lying in approximately the planes of the bottom of the shorter springs, and clips connecting said springs to said supporting rods.