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SPRING CUSHION ASSEMBLY

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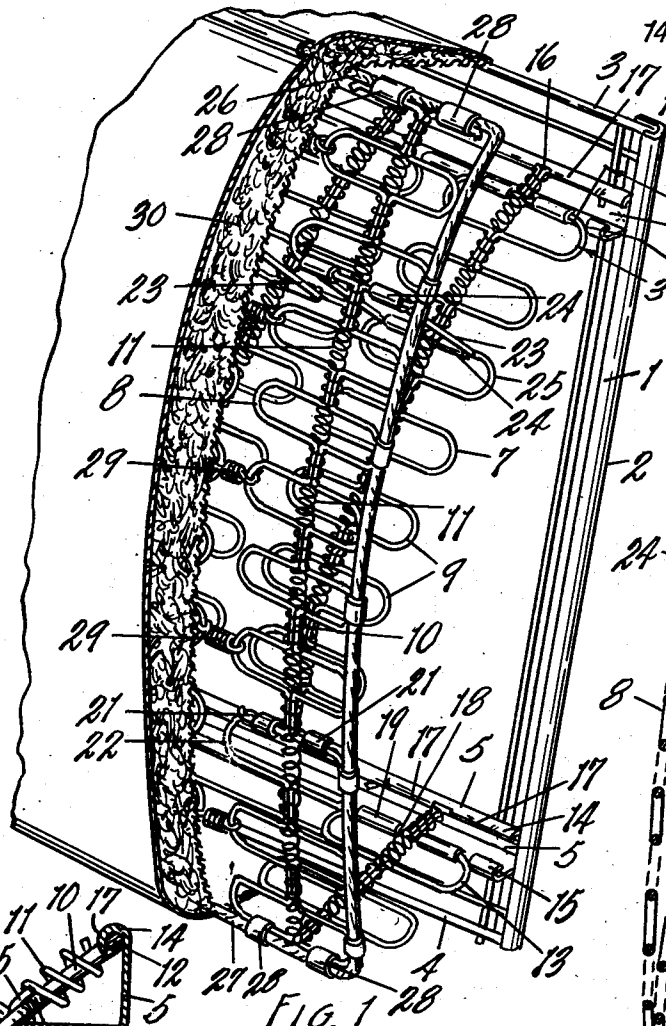


FIG. 1

FIG. 3

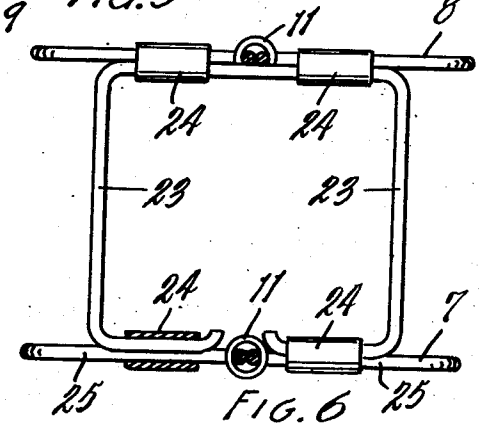


FIG. 6

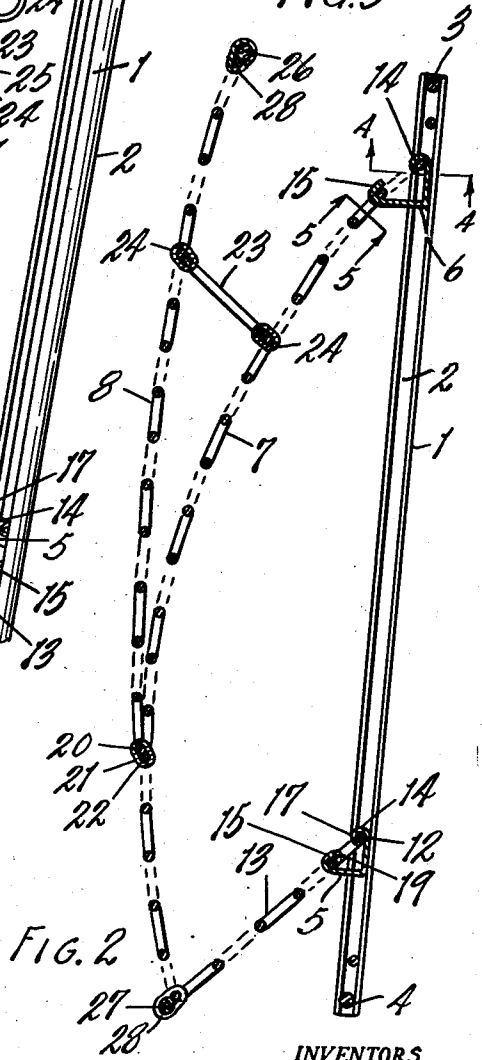


FIG. 2

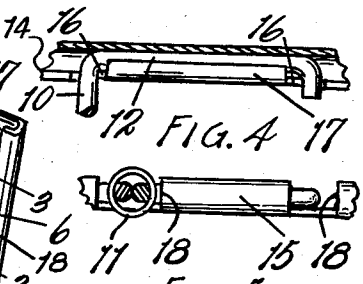


FIG. 4

FIG. 5

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SPRING CUSHION ASSEMBLY

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10 Claims. (Cl. 155—179)

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This invention relates to improvements in spring cushion assemblies.

The main objects of this invention are:

First, to provide a spring cushion assembly in which the spring units or members of the zigzag bent type may be quickly and securely mounted and are held against rattling.

Second, to provide a spring assembly for cushions which is well adapted for use in the back cushions of motor vehicles or furniture providing a yieldable upholstery support and at the same time one which does not have objectionable rebound action.

Third, to provide a spring structure by which the upholstery is effectively and uniformly yieldably supported.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined and pointed out in the claims.

Fig. 1 is a fragmentary perspective view of a spring assembly of our invention embodied as a back cushion.

Fig. 2 is an enlarged fragmentary view partially in section and with certain parts shown conventionally.

Fig. 3 is an enlarged fragmentary view in section on a line corresponding to 3—3 of Fig. 1.

Fig. 4 is an enlarged fragmentary view in section on a line corresponding to 4—4 of Fig. 2.

Fig. 5 is an enlarged fragmentary view on a line corresponding to 5—5 of Fig. 2.

Fig. 6 is an enlarged fragmentary view partially in section illustrating details of the connection for the main and supplementary spring units.

In the accompanying drawing the base frame is designated generally by the numeral 1 and comprises end members 2 connected by longitudinal members 3 and 4. Details of these connections form no part of our present invention and therefore are not further illustrated or described.

Spring units supporting cross bars 5 and 6 are disposed in spaced parallel relation and secured in fixed relation upon the base frame.

The embodiment of our invention illustrated comprises main spring units designated generally by the numeral 7 and auxiliary spring units designated by the numeral 8. These spring units are of the zigzag bent type. Each unit of the embodiment illustrated comprises a pair of wire strands bent to provide oppositely disposed loops 9 with the reaches 10 thereof between the loops in parallel side by side relation. The strands are

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permanently secured together by helically coiled springs 11 which are spirally threaded around the reaches 10 so as to tie the strands together and bridge the spaces between the arms of the loops. The ends of units terminate in laterally disposed fingers 12. The main spring units are reversely and inwardly bent at one end to provide springable arms 13.

The spring supporting bars 5 and 6 have inturned flanges 14 and 15, the flanges 14 being notched at 16 providing finger engaging tongues 17 while the flanges 15 are notched at 18 providing tongues 19 engageable with arms of loops of the main spring units as is illustrated in Figs. 2, 3, 4 and 5. The fingers 20 at one end of the auxiliary spring members 8 are secured by clips 21 to loops 22 intermediate the ends of the top portion of the main spring units. These auxiliary spring units are further supported by means of struts 23 which are desirably formed of wire and secured by the clips 24 to loops of the auxiliary spring intermediate their ends and by clips 25 to loops of the main spring units intermediate their ends. The main and auxiliary spring units are in practice assembled prior to mounting upon the supporting frame.

In mounting the assembled spring units upon the supporting frame the fingers at the ends of the main spring unit are engaged with the tongues 17 with the arms 13 and the other ends of the main spring unit in fulcruming supported engagement with the projecting arms of the cross bars. The loops adjacent the main spring are springably engaged with the tongues 15 of the arms of the cross bars on which they are fulcrumed, that is, the parts are engaged under spring stress so that the spring tension acts to hold them in engagement and also prevents rattling.

The free ends of the auxiliary spring members are connected by top border members 26 while the main spring members are connected by the top border member 27, all of these connections desirably being in the form of clips 28. The adjacent spring units are connected by helically coiled tie members 29. The upholstery indicated at 30 is suitably secured to the frame by securing means, not illustrated. With this arrangement the spring units may be very quickly and easily mounted on the frame and they are effectively retained and supported in upright position.

We have illustrated and described one practical embodiment of our invention. We have not attempted to illustrate or describe other ad-

vantages of our invention as we believe this disclosure will enable those skilled in the art to embody or adapt our invention as may be desired.

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

1. A spring assembly comprising a base frame including angled crossbars disposed in spaced parallel relation, opposite longitudinal edge portions of each bar providing arms with one of the arms projecting outwardly away from the base frame, the arms of the crossbars terminating in curved flanges disposed at an angle to the arms and having notches therein aligned with each other, the reaches of the flanges between the notches constituting opposed clips, a plurality of outwardly bowed main and supplemental spring units, each comprising strands of wire having longitudinally spaced oppositely disposed loops therein of substantial length extending transversely of the length of the unit and having reaches between the loops disposed lengthwise of the unit in side by side relation, the ends of the strands terminating in opposed laterally extending fingers, and a helical tie member threaded upon said reaches, the main spring units being inwardly and reversely bent at one end providing springable supporting arms, the main spring units each having the reaches of the strands thereof disposed between adjacent clips of the outwardly projecting arms of the angled crossbars and having the loop portions of the strands adjacent said reaches fulcrumed within said adjacent clips, the fingers of the main spring units being retainingly engaged with the adjacent clips of the other arms of the crossbars, the fingers at one end of the supplemental spring units being secured to corresponding loops of the main spring unit, struts disposed in spaced relation to the ends of the supplemental spring unit and secured at their outer ends to corresponding loops thereof and at their inner ends to corresponding loops of the main spring units, and top border members connected to the free ends of said supplemental spring units and to said main spring units at the juncture thereof with their said supporting arms.

2. A spring assembly comprising a base frame including angled crossbars disposed in spaced parallel relation, opposite longitudinal edge portions of each bar providing arms with one of the arms projecting outwardly away from the base frame, the arms of the crossbars terminating in curved flanges disposed at an angle to the arms and having notches therein aligned with each other, the reaches of the flanges between the notches constituting opposed clips, a plurality of outwardly bowed spring units, each comprising strands of wire having longitudinally spaced oppositely disposed loops therein of substantial length extending transversely of the length of the unit and having reaches between the loops disposed lengthwise of the unit in side by side relation, the ends of the strands terminating in opposed laterally extending fingers, and a helical tie member threaded upon said reaches, the spring units being inwardly and reversely bent at one end providing springable supporting arms, the spring units each having the reaches of the strands thereof disposed between adjacent clips of the outwardly projecting arms of the angled crossbars and having the loop portions of the strands adjacent said reaches fulcrumed within said adjacent clips, the fingers of the spring units being and with the fingers of the main spring units retainingly engaged with the adjacent clips of the other arms of the crossbars.

3. A spring assembly comprising a base frame including angled crossbars disposed in spaced parallel relation, opposite longitudinal edge portions of each bar providing arms with one of the arms projecting outwardly away from the base frame, the arms of the crossbars terminating in curved flanges disposed at an angle to the arms and having notches therein aligned with each other, the reaches of the flanges between the notches constituting opposed clips, a plurality of outwardly bowed main and supplemental spring units, each comprising strands of wire having longitudinally spaced oppositely disposed loops therein of substantial length extending transversely of the length of the unit and having reaches between the loops disposed lengthwise of the unit in side by side relation, the ends of the strands terminating in opposed laterally extending fingers, and a helical tie member threaded upon said reaches, the main spring units each having the reaches of the strands thereof disposed between adjacent clips of the outwardly projecting arms of the angled crossbars and having the loop portions of the strands adjacent said reaches fulcrumed within said adjacent clips, the fingers of the main spring units being retainingly engaged with the adjacent clips of the other arms of the crossbars, the fingers at one end of the supplemental spring units being secured to corresponding loops of the main spring unit, and struts disposed in spaced relation to the ends of the supplemental spring unit and secured at their outer ends to corresponding loops thereof and at their inner ends to corresponding loops of the main spring units.

4. A spring assembly comprising a base frame including angled crossbars disposed in spaced relation, opposite longitudinal edge portions of each bar providing arms with one of the arms projecting outwardly away from the base frame, the arms of the crossbars terminating in notched flanges disposed at an angle to the arms, the flanges of the arms of each bar having seating faces, the seating faces of the flanges of one arm being disposed in opposed relation to the seating faces of the flanges of the other arm, a plurality of zigzag bent main and supplemental spring units terminating in laterally disposed fingers, the main spring units being inwardly and reversely bent at one end providing springable supporting arms, the main spring units being disposed in the notches of the flanges of the outwardly projecting arms and with the loops of the units fulcrumed upon and retainingly engaged with the seating faces of said flanges adjacent said notches, the fingers of the main spring units being retainingly engaged with the seating faces of the flanges of the other arms of the crossbars, the fingers at one end of the supplemental spring units being secured to loops of the main spring unit, struts disposed in spaced relation to the ends of the supplemental spring unit and secured at their outer ends to loops thereof and at their inner ends to loops of the main spring units, and top border members connected to the free ends of said supplemental spring units and to said main spring units at the juncture thereof with their said supporting arms.

5. A spring assembly comprising a base frame including crossbars disposed in spaced relation, opposite longitudinal edge portions of each bar providing arms with one of the arms projecting outwardly away from the base frame, the arms

of the crossbars terminating in notched flanges disposed at an angle to the arms, the flanges of the arms of each bar having seating faces, the seating faces of the flanges of one arm being disposed in opposed relation to the seating faces of the flanges of the other arm, a plurality of zigzag bent main and supplemental spring units terminating in laterally disposed fingers, the main spring units being disposed in the notches of the flanges of the outwardly projecting arms and with the loops of the units fulcrumed upon and retainingly engaged with the seating faces of said flanges adjacent said notches, the fingers of the main spring units being retainingly engaged with the seating faces of the flanges of the other arms of the crossbars, the fingers at one end of the supplemental spring units being secured to loops of the main spring unit, and struts disposed in spaced relation to the ends of the supplemental spring unit and secured at their outer ends to loops thereof and at their inner ends to loops of the main spring units.

6. A spring assembly comprising a base frame including cross bars disposed in spaced relation, opposite longitudinal edge portions of each bar providing arms with one arm of each bar projecting outwardly, the arms of the cross bars terminating in notched flanges disposed at an angle to the arms, the flanges of the arms of each bar having seating faces, the seating faces of the flanges of one arm being disposed in opposed relation to the seating faces of the flanges of the other arm, a plurality of zigzag bent spring units terminating in laterally disposed fingers, the spring units being inwardly and reversely bent at one end providing springable supporting arms, the spring units being disposed in the notches of the flanges of the outwardly projecting arms and with the loops of the units fulcrumed upon and retainingly engaged with the seating faces of said flanges adjacent said notches, the fingers of the spring units being retainingly engaged with the seating faces of the flanges of the other arms of the cross bars.

7. A spring assembly comprising a base frame including cross bars disposed in spaced relation, opposite longitudinal edge portions of each bar providing arms with one arm of each bar projecting outwardly away from the base frame, the arms of the cross bars terminating in notched flanges disposed at an angle to the arms, the flanges of the arms of each bar having seating faces, the seating faces of the flanges of one arm being disposed in opposed relation to the seating faces of the flanges of the other arm, a plurality of zigzag bent spring units terminating in laterally disposed fingers, the spring units being disposed in the notches of the flanges of the outwardly projecting arms and with the loops of the units fulcrumed upon and retainingly engaged with the seating faces of said flanges adjacent said notches, the fingers of the spring units being retainingly engaged with the seating faces of the flanges of the other arms of the cross bars.

8. A spring assembly comprising spring supporting bars disposed in spaced relation, opposite longitudinal edge portions of each bar providing arms with one arm of each bar projecting outwardly of the assembly, the arms of the cross bars terminating in longitudinally spaced tongues and a plurality of bowed zigzag bent spring units terminating in laterally disposed fingers, the spring units being fulcrumed upon the outwardly projecting arms of the bars with the tongues thereof extending around in retaining engagement with bends of the units and with the fingers of the units engaged by tongues of the other arms of the bars.

9. A spring assembly comprising spring supporting bars disposed in spaced relation, opposite longitudinal edge portions of each bar providing arms with one of the arms of each bar projecting outwardly of the assembly, the arms of the bars having integral tongues thereon, and a plurality of zigzag bent spring units terminating in laterally disposed fingers, the spring units being fulcrumed upon the tongues of the outwardly projecting arms of the bars with laterally disposed portions of the units surrounded by and in springable engagement with the tongues of the arms on which the spring units are fulcrumed and with the fingers thereof retainingly engaged by the tongues of the other arms of the bars.

10. A spring assembly comprising a base frame including a crossbar with the opposed longitudinal edge portions thereof providing arms with one arm thereof projecting outwardly, each arm of the assembly having integral tongues thereon, said tongues having seating faces, the seating faces of the tongues of one arm being opposed to the seating faces of the tongues of the other arm, and a plurality of zigzag bent spring units providing laterally projecting portions and terminating in laterally disposed fingers, the spring units being fulcrumed upon the forwardly projecting arm of the crossbar with the laterally projecting portions of the spring units in springable retaining engagement with the seating faces of the tongues of the outwardly projecting arm, the fingers of the spring units being retainingly engaged by the seating faces of the tongues of the other arm of the crossbar.

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