

1,342,522.

L. A. YOUNG.  
BACK SPRING CONSTRUCTION.  
APPLICATION FILED NOV. 3, 1919.

Patented June 8, 1920.

2 SHEETS—SHEET 1.

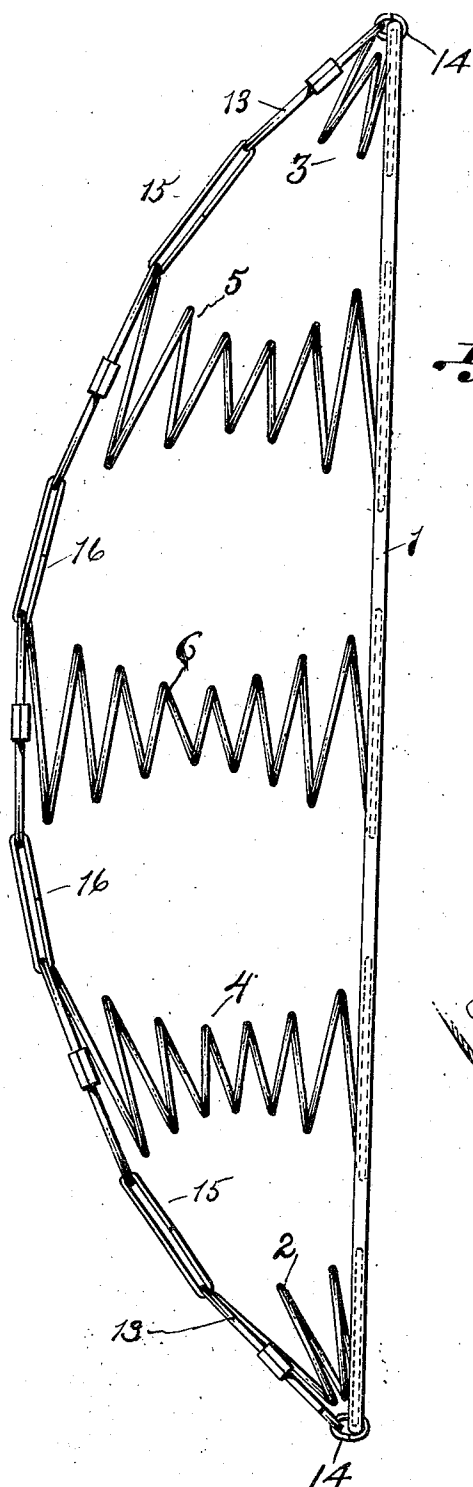


Fig. 1.

Fig. 4.

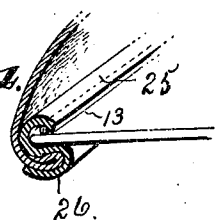
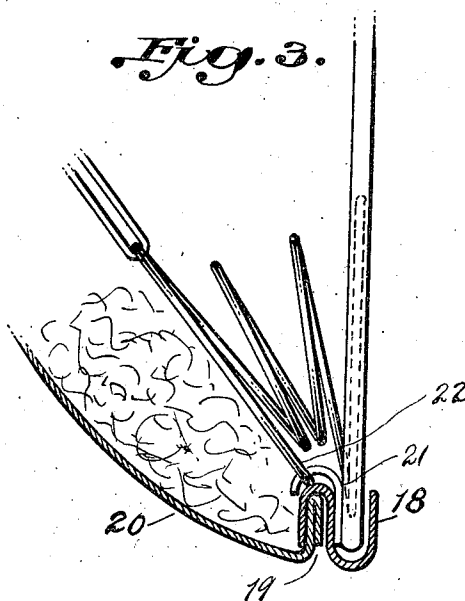


Fig. 3.



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By

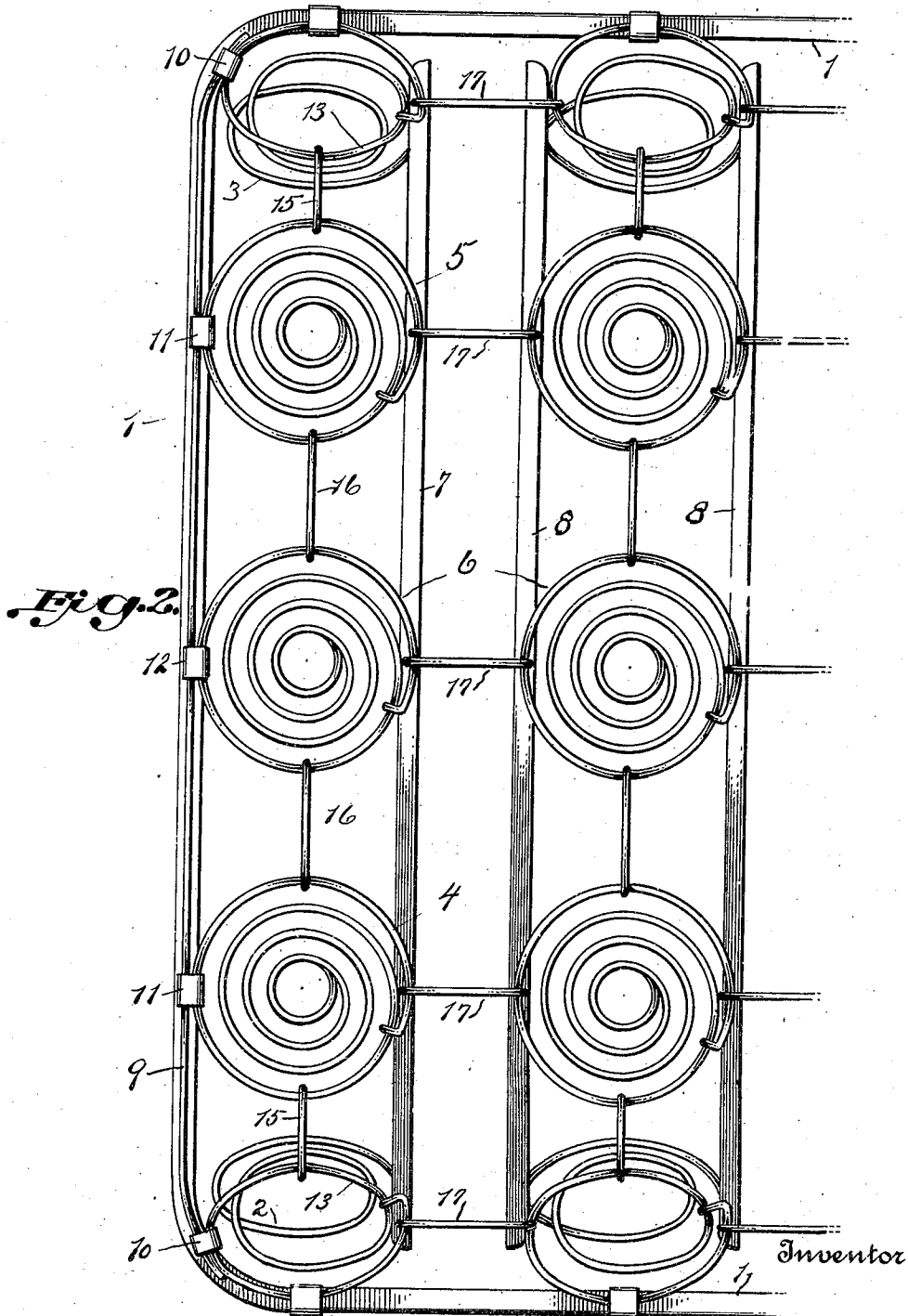
Clement R. Stickney

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# UNITED STATES PATENT OFFICE.

LEONARD A. YOUNG, OF DETROIT, MICHIGAN.

## BACK-SPRING CONSTRUCTION.

1,342,522.

Specification of Letters Patent.

Patented June 8, 1920.

Application filed November 3, 1919. Serial No. 335,482.

*To all whom it may concern:*

Be it known that I, LEONARD A. YOUNG, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Back-Spring Construction, of which the following is a specification.

In the construction of upholstery for the backs of seats and more particularly of the spring structure itself, it is frequently desirable to make the same for certain classes of vehicles in such a manner as to present a substantially uniform curved exterior with a maximum pliability or elasticity at the center of the back and diminishing softness toward the edges thereof. This invention relates to a back spring construction for use in automobiles and the like, wherein a contour is obtained that is practically uniform in curvature from side to side and has its greatest degree of pliability at the middle portion of the back where the depth of the cushion is greatest, and wherein the desired result is obtained by a minimum number of parts so that the structures may be produced in large quantities with but slight expense for labor in assembling.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings:

Figure 1 is a view in side elevation of a back spring construction that embodies features of the invention;

Fig. 2 is a view in front elevation of a portion thereof;

Fig. 3 is a view in detail, considerably enlarged, showing one means of securing the marginal body spring to the rim frame and of affording anchorage for upholstery covering; and

Fig. 4 is a view in detail of another means of securing the springs to a reinforced rim construction.

As herein indicated in preferred form, a rim frame 1 of the desired contour is arranged to support marginal body springs 2 at the lower edge and 3 at the upper edge, with intermediate springs 4 and 5 and middle springs 6. As herein indicated, the strip 1 is a U-section and the base turns of the springs on the border are inserted between and gripped by the flanges of the U-strip. Transversely disposed U-strips 7 extend

from the base turns of the marginal springs 2 and 3 and are clamped upon the base turns of the springs 4, 5 and 6 while the interior springs are supported wholly by U-strips 8 arranged in pairs, that bridge between the correspondingly located pairs of marginal springs 2 and 3.

An end arch 9 comprising a suitably curved bar, is connected near the ends as by clips 10 to the upper turns of the coil springs 2 and 3, while other clips 11 and 12 likewise connect the bar to the intermediate springs 4 and 5 and the middle spring 6.

The latter spring has the greatest number of convolutions, the intermediate springs 4 and 5 have a lesser number of turns, while the end springs 2 and 3 are of least height, whereby the tilted upper turns 13 may be readily coupled as by clips 14 or other suitable means to the bar 1.

Suitable loops 15 connect the turns 13 of the springs 2 and 3 with the outer end coils of the springs 4 and 5, other connectors 16 joining the outer turns of the springs 6 to the adjacent corresponding turns of the springs 4 and 5. Longitudinally disposed clips 17 connect the corresponding pairs of springs of each cross row as indicated.

While the clips 14 may be used to couple the upper turns 13 of the outer springs with the rim, other devices may be used and such construction is indicated in Fig. 3 where the rim frame is made of an S-strip 18 having an outer channel 19 in which the margin of an upholstery covering 20 may be inserted and held. In such construction a hook 21 may be employed to hold the upper turns 22 of the adjacent body springs or as indicated in Fig. 4, the upper turn of the body spring may be gripped by a U-strip 25, the U-strip in this instance being shown (although this is not necessary) with a depending flange portion 26 as a stiffener as well as a retainer for applied upholstery.

As a result of this construction, a back spring structure is obtained that has great resiliency at the center where it contacts principally with the body of the user while the diminishing heights of the springs toward the edges insure the necessary cross-sectional conformation and diminished resiliency as the upper and lower margins are approached. Because of the form of the construction and the parts used, clips are

avoided to a large extent, and as a consequence, the labor of assembling is greatly diminished.

Obviously, changes of the details in construction may be made without departing from the spirit of my invention and I do not care to limit myself to any particular form or arrangement of parts.

I claim as my invention:

1. A back spring construction comprising a rim frame, body springs disposed thereon and arranged with the height thereof diminishing from the middle of the construction toward the sides thereof and means articulating the outer coils of the springs to each other and to the rim frame and confining the top coils of the body springs to lie in a curved plane from edge to edge of the construction.
2. A back seat structure comprising a frame, body springs mounted thereon, the middle springs having the greatest length and the heights of the other springs diminishing toward the margins of the structure, means articulating the outer coils of the springs to each other and confining the outer coils of the body springs to lie in a curved plane extending from margin to margin of the structure and means connecting the springs forming the end portions of the structure and defining the curvature assumed by the rest of the springs.
3. A back spring construction comprising a base, body springs on the base with the heights thereof diminishing from the middle of the structure to the sides thereof, the top turns of the marginal springs being each secured to the adjacent side of the base in tilted position, connectors between the top turns of the adjacent springs whereby the turns lie in a plane arching from side to side of the structure and resilient arch members that spring from side to side of the base at each end thereof, and connected to the top turns of the end springs to define the plane in which the top turns of the body springs lie.
4. A back spring construction comprising a base, body springs thereon arranged with the heights thereof diminishing from the middle of the structure to the sides thereof, the top turns of the marginal springs being connected to the base to lie in a down-tilted position, and means articulating the top turns of the intermediate springs to each other and to the top turns of the marginal springs whereby the top turns of the body springs lie in an arch extending from side to side of the base.
5. A back spring construction comprising a base, body springs thereon arranged with the heights diminishing from the middle of the structure to the sides thereof, means securing the top turns of the marginal springs to the sides of the base in tilted position,

connectors articulating the top turns of the adjacent springs to each other whereby the top turns lie in a plane arching from side to side of the structure and upholstery applied on the arch surface formed by the top turns and provided with a cover the margins of which are secured to the sides of the base.

6. A back spring construction comprising a rim, transverse members across the rim frame, body springs mounted on the rim frame and arranged with the heights thereof diminishing from the middle of the construction to the sides thereof, means securing the top coils of the lateral marginal springs to the rim frame in tilted position and means connecting the top turns of the other body springs each with the other and with the tilted top turns of the marginal springs whereby the upper turns of the springs lie in an arched plane extending from side to side of the rim frame.

7. A back seat construction comprising a base formed of an S-section rim strip and transverse U-section strips, body springs the base turns of which are secured in the channels provided by the S and U strips and arranged with the heights thereof diminishing from the middle of the construction toward the sides thereof and means articulating the outer coils of the spring to each other and to the rim frame and confining these coils to lie in an arched plane from edge to edge of the construction.

8. A back spring construction comprising a base, the rim of which is provided with an outer channel, body springs mounted on the base and arranged with the heights diminishing from the middle of the structure to the sides thereof, means articulating the outer coils of the springs to each other and to the rim frame and confining the top coils to lie in a curved plane from edge to edge of the construction and upholstery on the arched surface thus formed the cover of which is secured along its margins in the channels provided by the rim.

9. A back spring comprising a rim frame, marginal springs, the base turns of which are rigidly secured to the rim frame, transverse members supported by the base turns of the marginal springs and arranged to span the space between correspondingly located pairs of springs, intermediate body springs supported by the transverse members, the middle body springs having the greatest length, the lateral marginal spring having the least length and the intermediate springs being of intermediate length, means confining the outer portions of the top coils of the lateral marginal springs to the rim frame and means connecting the top turns of the outer springs with each other and with the tilted top turns of the lateral marginal springs whereby the upper coils of the

structure lie in a curved plane extending from side to side of the rim frame.

10. A back spring structure comprising a rim frame including a strip having a pair of intumed spaced flanges, marginal body springs, the base turns of which are secured between the flanges of the rim frame strip, intermediate frame members having pairs of flanges between which the base turns of the marginal body springs are secured, intermediate body springs, the base turns of which are secured between the flanges of corresponding pairs of intermediate frame members, means securing the upper turns of the lateral marginal springs to the rim frame in oblique relation thereto and means interconnecting the top turns of the other body springs with each other and with the tilted upper turns of the lateral marginal springs whereby the upper turns of the body spring lie substantially in a curved plane.

In testimony whereof I affix my signature.  
LEONARD A. YOUNG.