

W. J. PARSONS.  
 VEHICLE SPRING.  
 APPLICATION FILED JAN. 12, 1915.

1,155,265.

Patented Sept. 28, 1915.

2 SHEETS—SHEET 1.

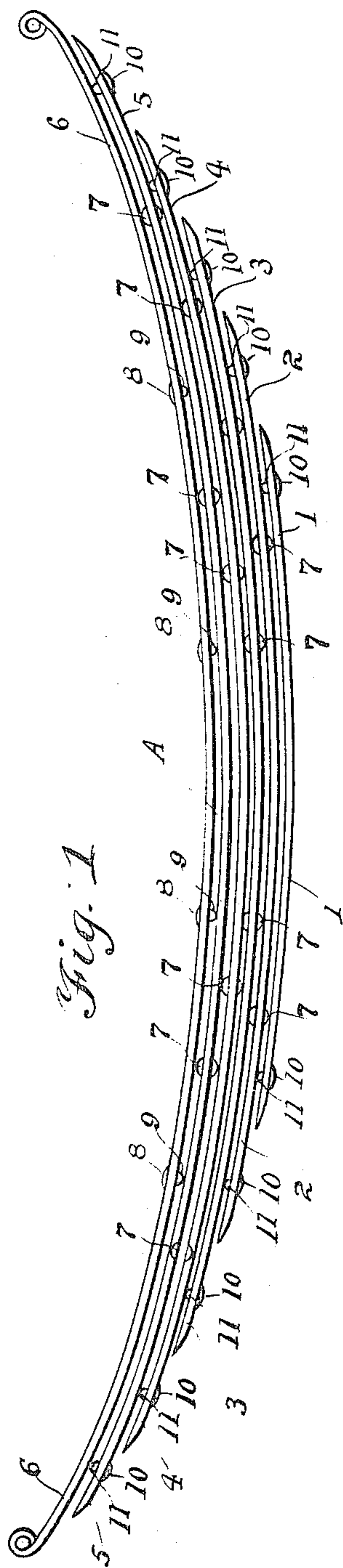


Fig. 1

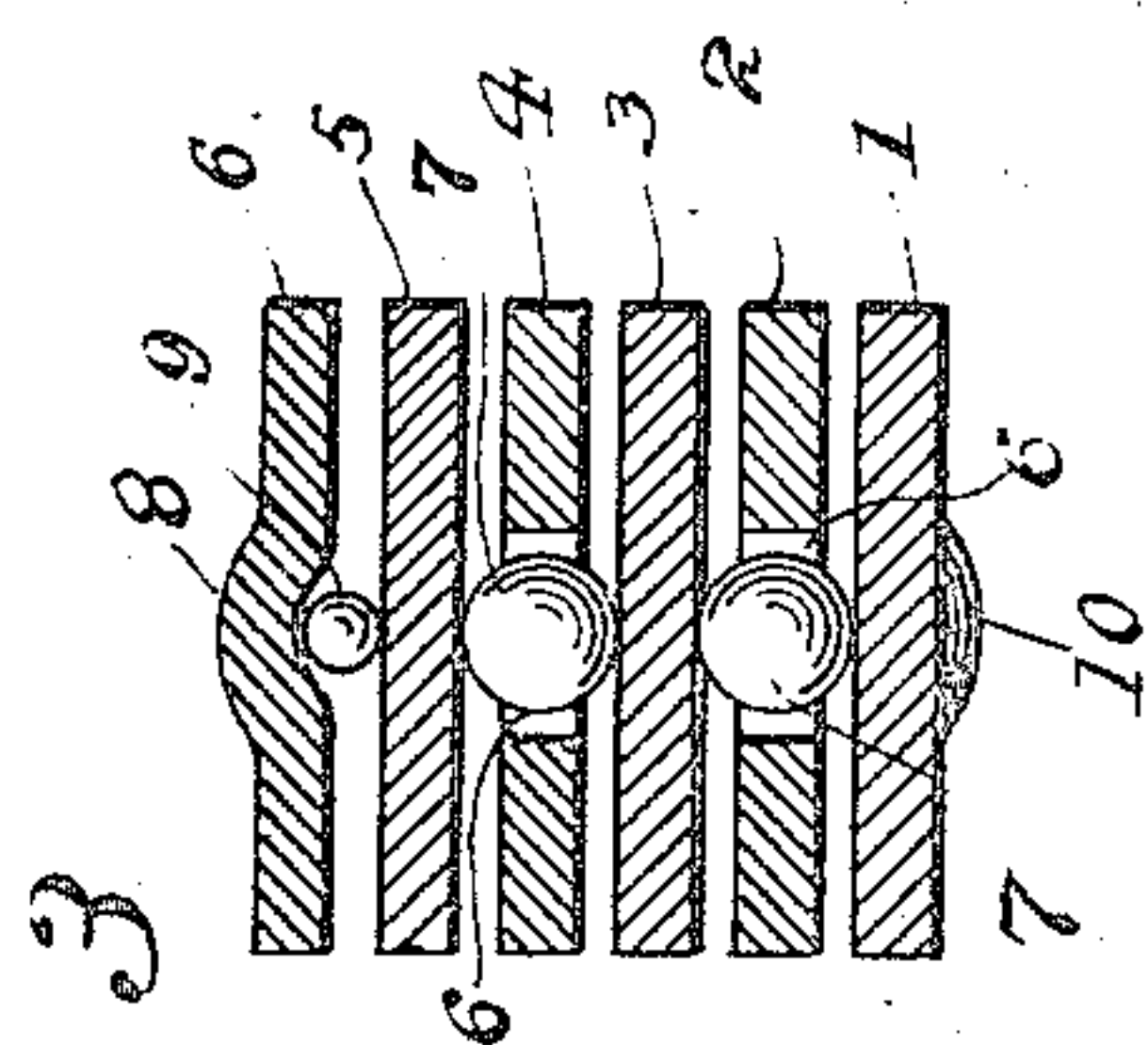


Fig. 3

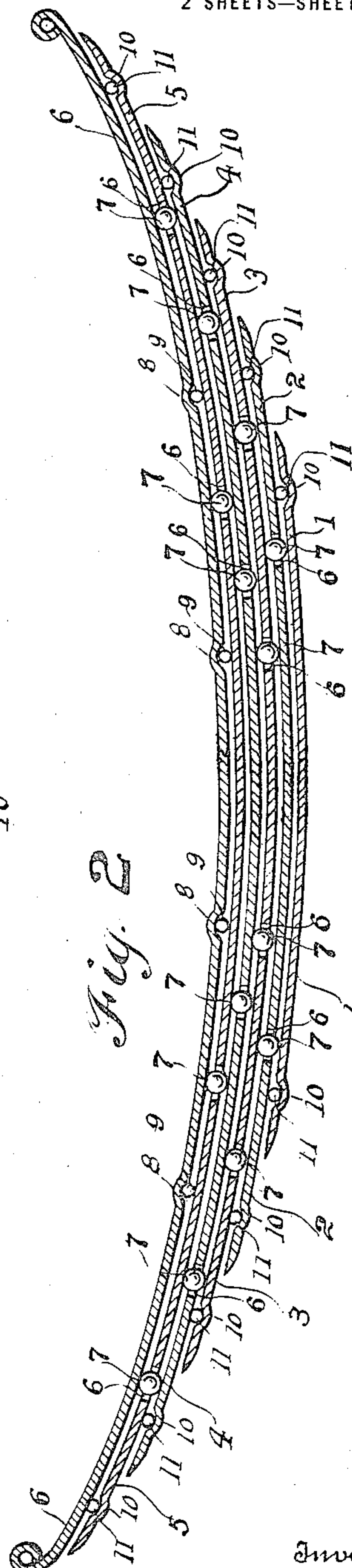


Fig. 2

Witnesses  
*H. H. Hallenburger*  
*John J. McCarty*

Inventor  
*W. J. Parsons*

By *Victor J. Evans*  
 Attorney

1,155,265.

W. J. PARSONS.  
VEHICLE SPRING.  
APPLICATION FILED JAN. 12, 1915.

Patented Sept. 28, 1915.  
2 SHEETS—SHEET 2.

Fig. 4

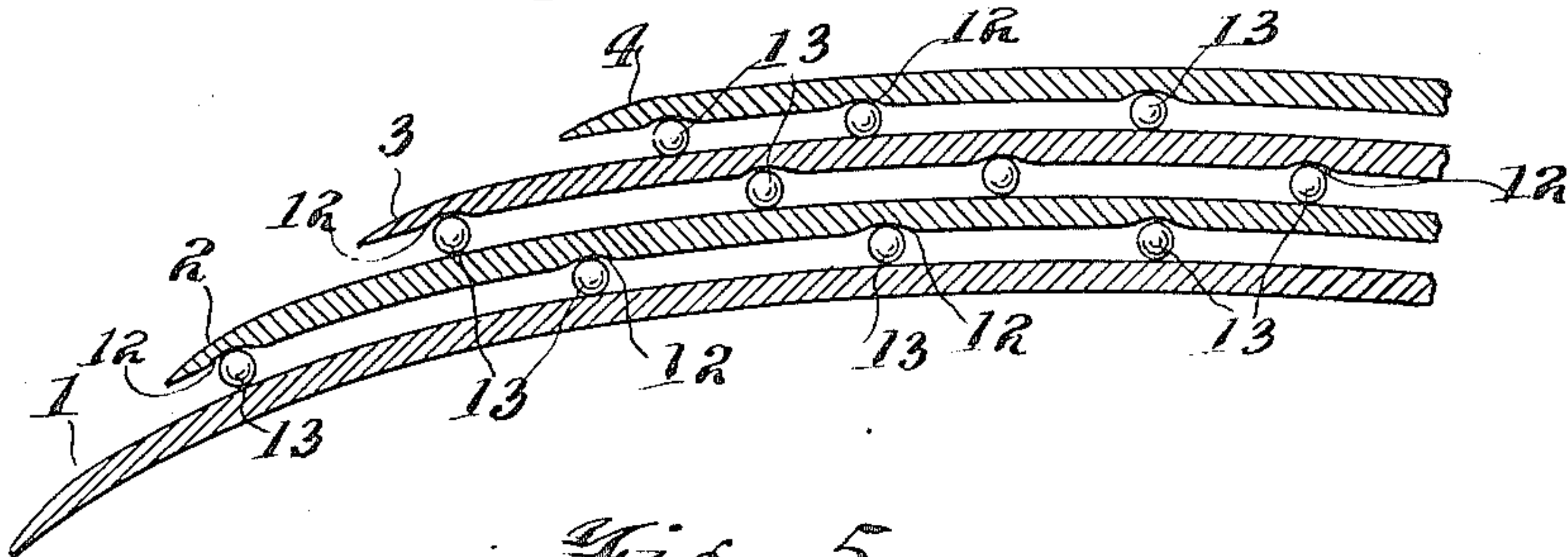


Fig. 5

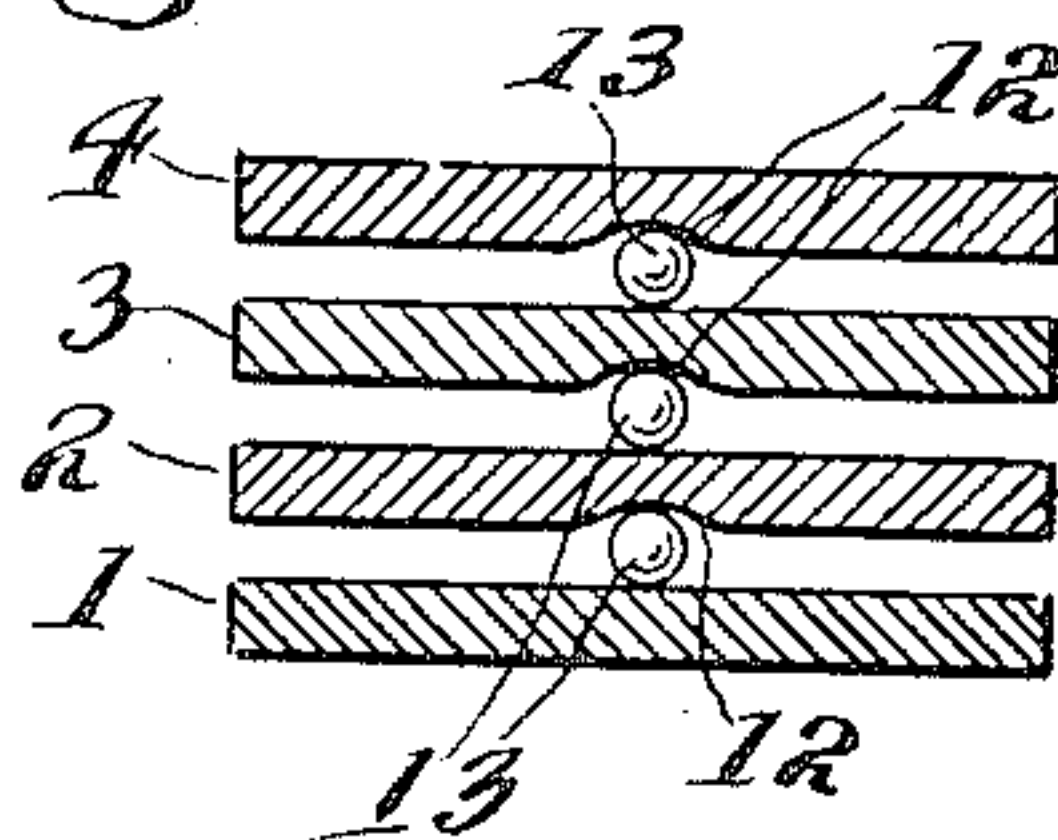


Fig. 6

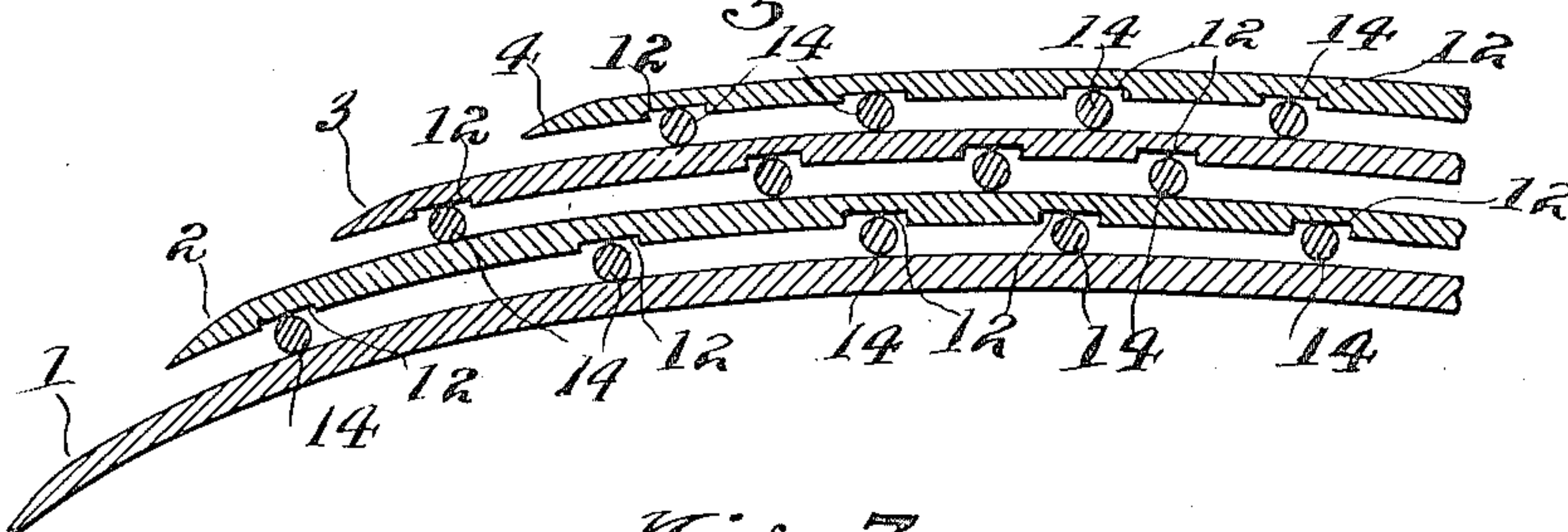
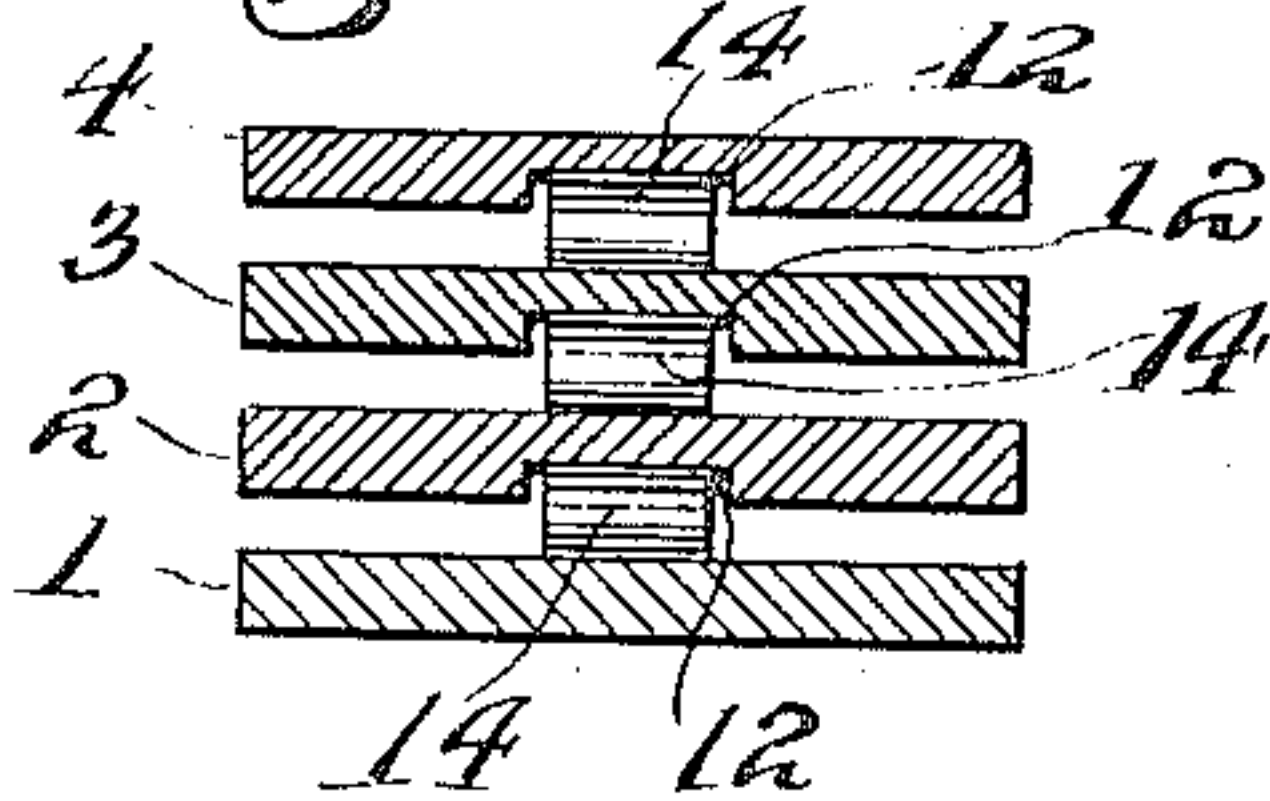


Fig. 7



Witnesses  
F. H. Hallenberger,  
John J. McCarthy

Inventor  
W. J. Parsons  
By Victor J. Evans  
Attorney



# UNITED STATES PATENT OFFICE.

WARREN J. PARSONS, OF HUNTINGTON, WEST VIRGINIA.

## VEHICLE-SPRING.

1,155,265.

Specification of Letters Patent.

Patented Sept. 28, 1915.

Application filed January 12, 1915. Serial No. 1,831.

*To all whom it may concern:*

Be it known that I, WARREN J. PARSONS, a citizen of the United States of America, residing at Huntington, in the county of Cabell and State of West Virginia, have invented new and useful Improvements in Vehicle-Springs, of which the following is a specification.

This invention relates to improvements in vehicle springs and has particular application to leaf springs.

In carrying out the present invention, it is my purpose to improve and simplify the general construction of leaf springs and to provide a spring wherein the individual leaves may slide one upon the other with the least possible friction in the operation of the spring.

It is also my purpose to provide a leaf spring wherein anti-friction bodies will be interposed between the individual leaves of the spring and arranged longitudinally thereof and wherein the anti-friction bodies in one row will be staggered relatively to those in an adjacent row so that the leaves will be held in spaced relation and move relatively to one another without friction.

With the above and other objects in view, the invention consists in the construction, combination and arrangement of parts hereinafter set forth in and falling within the scope of the claims.

In the accompanying drawing; Figure 1 is a view in side elevation of a leaf spring constructed in accordance with the present invention. Fig. 2 is a longitudinal sectional view therethrough. Fig. 3 is a transverse sectional view through the same. Fig. 4 is a longitudinal section view showing a modified form of the invention. Fig. 5 is a cross sectional view through the structure illustrated in Fig. 4. Fig. 6 is a longitudinal sectional view showing a still further modification. Fig. 7 is a cross sectional view through the modification illustrated in Fig. 6.

Referring now to the drawing in detail and particularly to the preferred form of my invention illustrated in Figs. 1, 2 and 3, A designates a spring as an entirety. This spring is composed of plates or leaves 1, 2, 3, 4, 5 and 6 disposed one upon the other and increasing in length progressively from the lowermost leaf to the topmost. In the present instance, the leaves 2, 3, 4 and 5 are formed, respectively, with a number of slots

6 extending longitudinally of the leaves and the slots in each leaf are arranged longitudinally thereof and staggered relatively to those of the adjoining leaf or leaves and disposed within these slots are anti-friction bodies in the form of balls or rollers 7 engaging the faces of the adjacent leaves. For instance, the balls or rollers in the slots 6 in the leaf 2 engage the top and bottom faces of the leaves 1 and 3 respectively, while the balls or rollers in the slots in the leaf 3 engage the top and bottom faces of the leaves 2 and 4 respectively. Similarly, the balls or rollers in the slots in the leaf 4 engage the top and bottom faces of the leaves 3 and 5 respectively, and the slots in the leaf 5 contact with the top and bottom faces of the respective leaves 4 and 6.

In the present instance, the outer ends of the leaves 1, 2, 3, 4, and 5 are formed with ball seats or cups 10 respectively carrying balls 11 engaging the under surfaces of the leaves 2, 3, 4, 5 and 6 respectively so that the ends of the leaves will be held in spaced relation and friction therebetween minimized.

It will be noted that the anti-friction bodies 7 extend longitudinally of the spring so that the load on the spring is equally distributed to the individual leaves thereof and the leaves permitted to move relatively to one another evenly and uniformly and without friction.

In the modified construction of spring illustrated in Figs. 4 and 5, the under surfaces of the leaves 2, 3, 4, 5 and 6 are formed with ball cups or seats 12 respectively. The seats 12 in the under surface of each leaf or plate of the spring are spaced apart longitudinally thereof and the seats in each leaf alternate with those in the adjacent leaf or leaves, as clearly illustrated in Fig. 4. Disposed within each seat is a ball 13 engaging the upper surface of the adjacent spring leaf and serving to minimize friction between the leaves of the spring, the balls in each row being staggered relatively to those in an adjoining row, owing to the relative positions of the seats in the respective leaves of the spring.

In the construction illustrated in Figs. 6 and 7, the seats 12 are cut into the under surfaces of the respective leaves in the form of segmental recesses and disposed within each seat is a roller 14 engaging the upper surface of the adjacent leaf. The rollers 14



in each row are arranged relatively to adjacent rows in a manner identical to the relative arrangement of the rows of balls hereinbefore described with reference to 5 Figs. 1, 2, 3, 4 and 5 of the drawings.

From the foregoing description taken in connection with the accompanying drawing, the construction and operation of my improved spring will be readily apparent. It 10 will be seen that I have provided a leaf spring for vehicles wherein the individual leaves of the spring are held in spaced relation through the medium of anti-friction bodies so that such leaves may be moved 15 freely one upon the other in the operation of the spring.

I am aware of the fact that it has hitherto been proposed to interpose anti-friction balls or bodies between the leaves of leaf springs, 20 but in springs of this character with which I am acquainted, retainers or carriers in the form of strips of metal are employed and each strip of metal constituting the retainer or carrier carries the rollers or anti-friction 25 bodies and is disposed between the confronting surfaces of the leaves of the spring; whereas, with my construction it is not necessary to use retainers or holders for the balls, as the leaves of the spring function not only 30 as springs, but also as spacers or retainers for the balls. So far as I am aware, I am the first to construct a leaf spring wherein certain of the leaves are formed with longitudinally extending slots, and to dispose 35 anti-friction bodies within the slots to bear against the faces of the adjacent leaves above and below the first-named leaves so as to hold the leaves spaced apart and eliminate friction therebetween. It will also be noted 40 that the leaves act to hold the balls in proper spaced relation, while the balls, in turn, hold the leaves spaced apart.

It will be observed that the balls in one row are staggered relatively to those in adjacent rows and owing to the staggered relation of the balls, each individual leaf of the spring is supported in such a manner as to cooperate with the remaining leaves to receive a certain portion of the strain on 50 the spring, thereby enabling the load on the spring to be distributed evenly and uniformly throughout the leaves thereof.

While I have herein shown and described

one preferred form of my invention by way of illustration, I wish it to be understood 55 that I do not limit or confine myself to the precise details of construction herein described and delineated, as modification and variation may be made within the scope of the claims without departing from the spirit 60 of the invention.

I claim:

1. A vehicle spring comprising a plurality of leaves overlying one another, certain of said leaves being formed with longitudinally 65 extending slots, and anti-friction bodies within said slots bearing against the faces of adjacent leaves and acting to hold the leaves of the spring spaced apart and eliminate friction therebetween. 70

2. A vehicle spring comprising a plurality of leaves overlying one another, anti-friction bodies interposed between the confronting faces of said leaves and arranged in rows, the bodies in each row extending longi- 75 tudinally of the spring and alternating with the bodies in an adjoining row.

3. A vehicle spring comprising a plurality of leaves overlying one another, anti-friction bodies interposed between the confronting faces of said leaves and arranged in rows, the bodies in each row extending longitudinally of the spring and alternating with the bodies in an adjoining row, the lower surfaces of the leaves of the spring coacting 85 with said bodies being formed with cups to receive the bodies.

4. A vehicle spring comprising a plurality of leaves overlying one another, certain of said leaves being formed with longitudinally 90 extending slots, balls within said slots bearing against the faces of adjacent leaves and acting to hold the leaves of the spring spaced apart and eliminate friction therebetween, the balls in the slots in each leaf 95 alternating with those in the slots of adjoining leaves so that the leaves will be held in spaced relation and the strain on the spring distributed evenly thereover.

In testimony whereof I affix my signature 100 in presence of two witnesses.

WARREN J. PARSONS.

Witnesses:

BEATRICE CROSS,  
DANIEL DAWSON.