F. S. OWEN.

VEHICLE SPRING.

APPLICATION FILED APR. 4, 1916.

1,207,992. Patented Dec. 12, 1916.

Fig. 1.

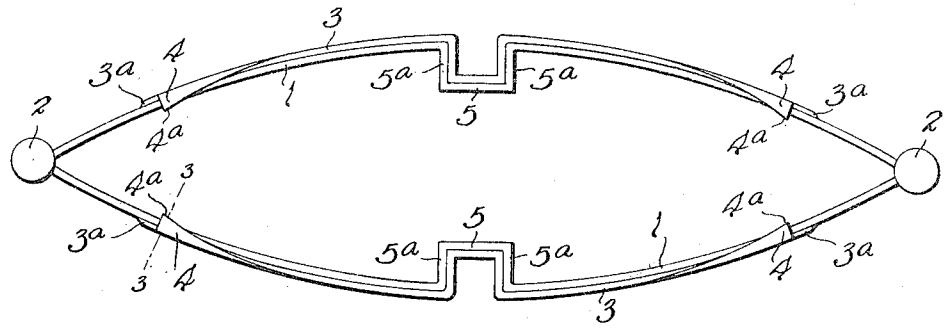


Fig. 2.

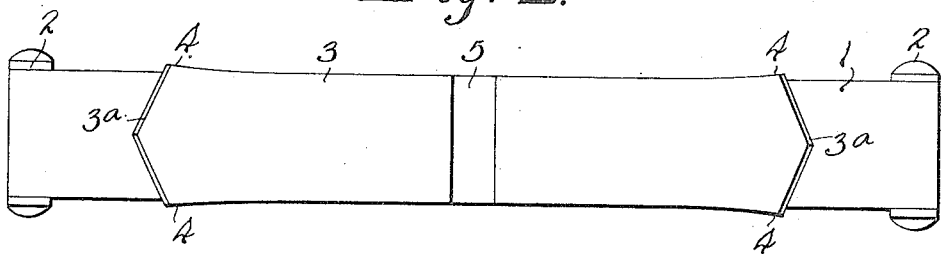
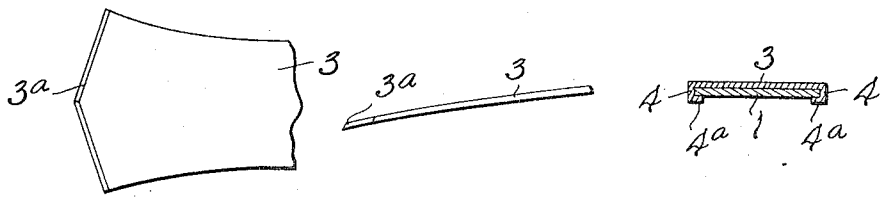


Fig. 4. Fig. 5. Fig. 3.



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UNITED STATES PATENT OFFICE.

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VEHICLE-SPRING.

1,207,992. Specification of Letters Patent. Patented Dec. 12, 1916.

Application filed April 4, 1916. Serial No. 88,775.

To all whom it may concern:

Be it known that I, FELIX S. OWEN, a citizen of the United States, residing at Billings, in the county of Yellowstone, State of Montana, have invented a new and useful Vehicle-Spring; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to certain new and useful improvements in the construction of elliptic springs, and has for its object to provide a device of this character in which the superposed leaves are mounted and assembled in such a manner as to obtain a maximum amount of strength and resiliency.

Further objects of the invention are to provide an elliptic spring which is comparatively simple and inexpensive in its construction, which makes provision for holding the superposed leaves securely against lateral displacement without the use of shackles, which utilizes the middle portions of the superposed leaves, as well as the extremities of the leaves, for the obtaining of resiliency, and which can be used in the same manner as an ordinary elliptic spring.

With these and other objects in view, the invention consists in certain novel combinations and arrangements of the parts as will more fully appear as the description proceeds, the novel features thereof being pointed out in the appended claims.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawing, in which:—

Figure 1 is a side elevation of a simple form of elliptic spring constructed in accordance with the invention. Fig. 2 is a top plan view of the same. Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 1. Fig. 4 is a top plan view of the flared end of one of the upper leaves before bending edge portions thereof downwardly to provide side flanges for engaging the next lower leaf. Fig. 5 is a side elevation of the flared end of the leaf, as shown by Fig. 4, bringing out the taper in thickness which preferably accompanies the flare in width.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawing by the same reference characters.

For the purpose of illustration the invention is shown as embodied in a simple elliptic spring, of which each half is formed of two superposed leaves, although it will be obvious that any desired number of superposed and graded leaves can be used in building up a spring, depending upon the load which the spring is designed to carry.

The numerals 1 designate the main or master leaves of the spring, said leaves being oppositely bowed in the usual manner, and being connected at their extremities by the conventional pivot bolts 2. A shorter leaf 3 is fitted upon each of the master leaves 1, the ends of the shorter leaves being preferably pointed, as indicated at 3^a. It will also be observed that the end portions of the shorter leaves are gradually flared in width, said flare in width being preferably accompanied by a gradual taper in thickness, as is indicated quite clearly by Figs. 4 and 5. The edge portions of the flared ends of the shorter spring strips are bent at right angles to the plane of the strips, thereby providing side flanges 4 which embrace the leaves 1 and prevent lateral displacement of the ends of the shorter leaves. Under some circumstances the extreme edges of the flanges 4 may be returned around the leaves 1, as indicated at 4^a. This would not interfere in any manner with the sliding movements of the superposed leaves upon each other as the spring flexes, but would make gaping of the springs impossible. With these side flanges 4 it is not necessary to employ any special shackles for holding the leaves of the spring together, and these flanges serve to reinforce the shorter leaves as well as to prevent lateral displacement thereof.

Each half of the elliptic spring is provided at the middle portion thereof with an inwardly extending crimp 5, the sides 5^a of the crimps being at substantial right angles to the body portions of the leaves. As the middle portions of the two halves of the spring are moved toward each other, the sides 5^a of the crimps 5 tend to spring inwardly, thereby causing the resiliency of the metal at the middle of the spring leaves to be utilized in absorbing the shocks and jars, as well as the resiliency of the ends of the leaves. Ordinarily, the middle portions of the leaves are practically dead and add little or nothing to the yielding qualities of the spring, although with the present construction the metal at the middle of the leaves is

brought into action as well as that at the ends of the leaves. In this manner increased strength and resiliency is obtained, without increasing the cost of the spring.

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

1. An elliptic spring including superposed leaves of graded lengths, the ends of the shorter leaves being simultaneously tapered in thickness and flared in width and the projecting edges of the flared ends being extended laterally to provide side flanges which embrace the sides of the longer leaves to hold the leaves against relative lateral displacement.

2. An elliptic spring including superposed leaves of graded lengths, the ends of the shorter leaves being simultaneously tapered in thickness and flared in width, the projecting flared edges being extended laterally to provide side flanges which embrace the longer leaves, and the side flanges terminating in inwardly extending lips, the lips preventing gaping of the ends of the leaves, while the side flanges prevent relative lateral displacement of the leaves.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FELIX S. OWEN.

Witnesses:
GEO. M. HAYS,
A. C. WANCK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents Washington, D. C."