(No Model.)

D. WILCOX.

WAGON SPRING.

No. 381,309. Patented Apr. 17, 1888.

Fig. 8.

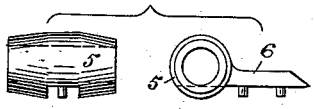


Fig. 7.

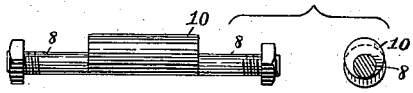


Fig. 6.

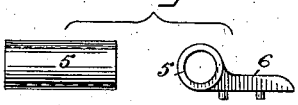


Fig. 5.

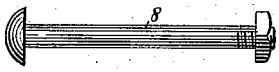


Fig. 1.

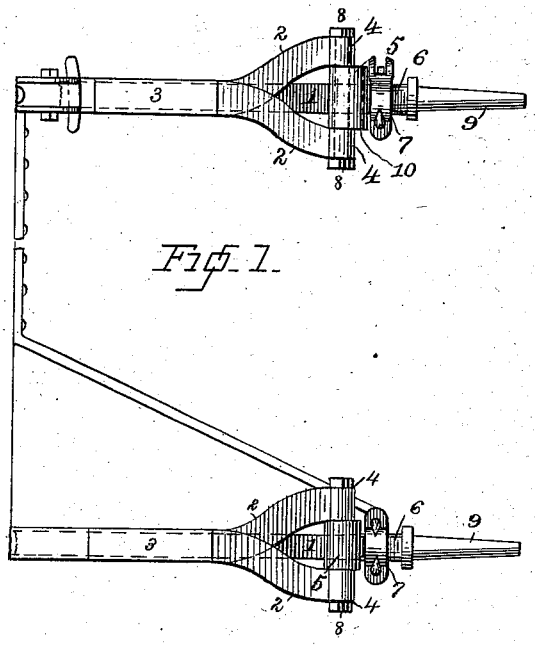


Fig. 2.

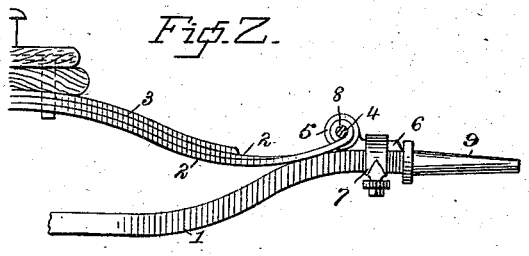
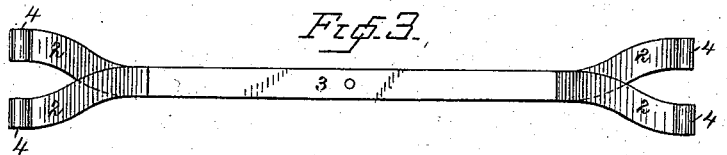


Fig. 4.

Fig. 3.



Witnesses.
Wm. J. Canner.
B. C. Lee.

Inventor.
Darius Wilcox.
By A. Wilbooster
Atty.

UNITED STATES PATENT OFFICE.

DARIUS WILCOX, OF DERBY, ASSIGNOR TO WILCOX & HOWE, OF BIRMINGHAM, CONNECTICUT.

WAGON-SPRING.

SPECIFICATION forming part of Letters Patent No. 381,309, dated April 17, 1888.

Application filed January 23, 1888. Serial No. 261,703. (No model.)

To all whom it may concern:

Be it known that I, DARIUS WILCOX, a citizen of the United States, residing at Derby, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Wagon-Springs; 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.

My invention has for its object to devise a simple and durable construction for wagon-springs that will wholly overcome the tendency to endwise motion of the body in end-spring wagons and lateral motion of the body in side-spring wagons, without increase in the cost of production.

With this end in view I have devised the novel construction of springs and connections therefor, of which the following description, in connection with the accompanying drawings, is a specification, numbers being used to denote the several parts.

Figure 1 is a plan view of one side of the running-gear of a wagon; Fig. 2, an elevation of half of a front spring; Fig. 3, a plan view of a whole spring; Fig. 4, an elevation of a whole spring; Fig. 5, an elevation of one form of bolt; Fig. 6, an edge view and elevation of the clip corresponding therewith; Fig. 7, an end view and elevation of another form of bolt, and Fig. 8 an edge view and elevation of the clip corresponding therewith.

It should be understood that the principles of my invention are equally adapted to the various styles of springs now upon the market—as, for instance, side and end half-springs and side and end elliptic springs. A single form being sufficient for the purposes of illustration, I have selected an end half-spring.

My improved springs may be composed of any preferred number of leaves, the essential principles being that the two lower leaves shall be of equal length, that their ends shall be bent outward away from each other, and shall be provided with eyes in line with each other and in the same horizontal plane, so as to receive a bolt.

1 denotes the axle; 2, the lower leaves of the spring, and 3 additional leaves, any number of which may be used.

4 denotes the eyes at the ends of the two lower leaves, and 5 an eye having a shank, 6, which is secured to the axle by a clip, 7. The relative arrangement of these parts will be clearly understood from Figs. 1 and 2, which show eye 5 placed between the eyes 4 at the ends of the lower leaves. A bolt, 8, passing through said eyes, secures the spring firmly to eye 5, and the clip secures the shank of eye 5 to the axle just back of the journal, which is denoted by 9. It will readily be seen that this double attachment of each end of each spring—that is, two attachments at a distance from each other in the same horizontal plane—avoids the danger of lateral or endwise motion of the body after the parts have become slightly loosened by wear.

In practice I have found that the springs ride much easier by making the portion of the bolt which passes through eye 5 eccentric to the portion which passes through eyes 4. The shape of this form of bolt is clearly illustrated in Fig. 7. (See, also, front axle in Fig. 1.) The eccentric portion of the bolt, which is denoted by 10, turns smoothly in eye 5.

Turning now to Fig. 1, it will be seen that when in rough riding the weight upon the springs acts to straighten them out the outward thrust upon eyes 4, through which the ends of the bolt pass, will cause eccentrics 10 to turn more or less in eyes 5, and to turn back again as soon as the pressure upon the springs is removed, the effect being to give additional resiliency to the springs through the oscillation of the bolts to which they are connected. Instead of using an independent bolt in the form shown in Figs. 5 and 6, trunnions may be formed at the opposite ends of eye 5. This being an obvious mechanical expedient is not deemed to require illustration.

It should be understood that I do not desire to limit myself to the exact details of construction illustrated and described, as it is obvious that said details may be considerably varied without departing from the spirit of my invention, the gist of which consists, first, in providing two lower leaves to each half-spring, the ends of said leaves being bent outward from each other, and being provided with eyes in the same horizontal plane and in line with each other, and, secondly, in the use of a

bolt passing through the eyes on the two lower leaves of the springs and through an eye upon the axle, the portion of the bolt passing through the eye upon the axle being eccentric to the portions passing through the eyes upon the lower leaves of the spring.

Having thus described my invention, I claim--

1. A half-spring for wagons, having two lower leaves of equal length bent outward from each other and provided with eyes at their ends.

2. A half-spring for wagons, consisting, essentially, of two lower leaves of equal length, the opposite ends of said leaves being bent outward from each other and provided with eyes in the same horizontal plane and in line with each other.

3. The combination, with a half-spring having two lower leaves of equal length, the ends of said leaves being bent outward and provided with eyes 4, of an eye, 5, secured to the axle, and a bolt passing through said eyes, whereby the springs are secured in place.

4. The combination, with a half-spring having two lower leaves of equal length bent outward from each other, and having eyes 4 at their ends in the same horizontal plane, of an eye, 5, secured to the axle between eyes 4, and a bolt passing through said eyes, the portion of the bolt in eye 5 being eccentric to the portions in eyes 4, so that when the weight tends to straighten the spring in use the eccentric is caused to turn in eye 5.

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

DARIUS WILCOX.

Witnesses:

A. M. WOOSTER,

B. E. LEE.