J. M. GAAR.

VEHICLE SPRING.

APPLICATION FILED JAN. 9, 1920.

1,422,956. Patented July 18, 1922.

Fig. 1.

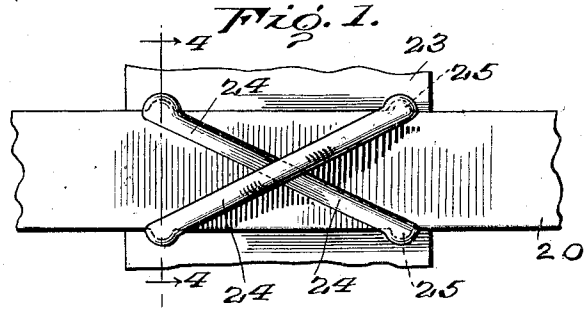


Fig. 2.

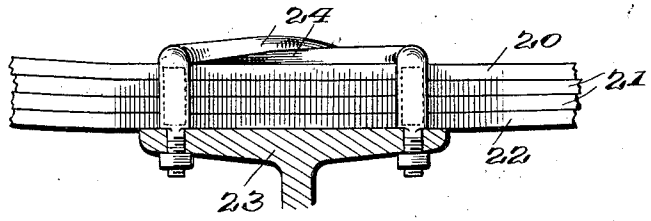


Fig. 3.

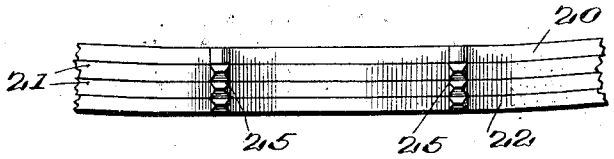
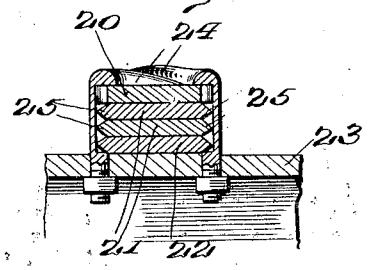


Fig. 4.



WITNESSES

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VEHICLE SPRING.

1,422,956. Specification of Letters Patent. Patented July 18, 1922.

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To all whom it may concern:

Be it known that I, JAMES M. GAAR, a citizen of the United States, and a resident of Richmond, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Vehicle Springs, of which the following is a specification.

My present invention relates generally to vehicle springs, and more particularly to what are commonly known as leaf springs, my primary object being the provision of an arrangement whereby, in case of fracture, the axle and the broken spring portions will be held from displacement, as long at least as the fracture takes place in that portion of the spring where it is attached to the frame or axle, and where the bending strains are greatest and it is normally weakest or purposely rendered so.

It is well known that the weakest points of leaf springs having the same width throughout their lengths, occur at the center, but such springs obviously provide no means in connection with U-bolts or spring clips whereby to positively retain the broken portions against displacement, should a fracture occur between the bolts or clips.

According to my invention the spring clips or bolts are so engaged with the springs at opposite sides of a probable point of fracture, that in case fracture does occur, the broken portions of the spring leaves will be positively retained in place.

Figure 1 is a top plan view of a portion of a spring showing the practical application of my invention,

Figure 2 is a side view thereof,

Figure 3 is a side view of the spring with the clips removed, and

Figure 4 is a cross section taken substantially on the line 4—4 of Figure 1.

Referring now to these figures, and particularly to Figures 1 and 2, I have shown a vehicle spring of the type first above mentioned which includes an upper master leaf 20, intermediate leaves 21 and a base leaf 22, in connection with an axle or like support shown at 23 in Figure 1, upon which the spring as a whole is centered and to which it is connected by U-bolts or spring clips 24 embracing the several leaves at spaced points upon opposite sides of their centers and secured through portions of the axle. As seen particularly in Figures 1, 2 and 3, the several leaves 20, 21 and 22 are of that type which are generally of the same width throughout so that their weakest point thus occurs centrally between their ends, in consideration of which and according to my invention, each leaf is provided with spaced pairs of laterally projecting lugs 25 at its opposite side edges located upon relatively opposite sides of the center and engaged by the sides of the U-bolts or spring clips so that should any of the leaves break along their weakest central point, engagement of the lugs 25 by the U-bolts or spring clips 24 will still maintain the broken portions of the leaves in position and prevent their displacement.

According to my invention as shown in Figure 1 crossed U-bolts or spring clips 24 have grooved extensions, the grooves of which receive single outstanding lugs 25 at the sides of the leaves upon relatively opposite sides of the centrally located probable line of fracture of the spring.

It is moreover preferable, in order to reduce, as far as possible, friction which might be present between the lugs or projections which extend beyond the normal limits of the spring leaves, either in case of integral structure or the securing of additional pieces to the leaves in any suitable manner, that the lugs have their upper and lower faces beveled as seen in Figures 3 and 4.

It is obvious from a careful consideration of the foregoing that means are provided by which the U-bolts or spring clips are so engaged with the spring leaves at relatively opposite sides of the weakest line or lines where probable fracture of the leaves would take place, that in case of such fracture along these lines the broken portions of the springs would be prevented from pulling away from one another through the bolts or clips and thus, in consideration of the fact that the outer ends of at least the upper or master leaf are connected to one of two relatively movable members whose movements are controlled by the spring, the broken portions of leaves and the axle will be prevented from displacement.

I claim:

1. A vehicle spring having leaves provided with vertical series of laterally projecting lugs in transversely aligned pairs on opposite sides of its center, and U-bolts having their upper portions crossing one another on top of the spring leaves and having their side portions depending along op-

posite sides of the spring leaves and engaging the said lugs, as and for the purpose described.

2. A vehicle spring having leaves provided with vertical series of lateral projections transversely aligned in pairs at opposite sides of its center, and U-bolts embracing the spring leaves and having inner grooves along the side portions thereof into which the lugs of the spring leaves extend and having their upper portions crossing one another on top of the spring leaves between their said side portions for the purpose described.

JAMES MILTON GAAR.