(No Model.)

M. T. FOSTER.

SPRING EQUALIZER.

No. 456,406. Patented July 21, 1891.

Fig: 1.

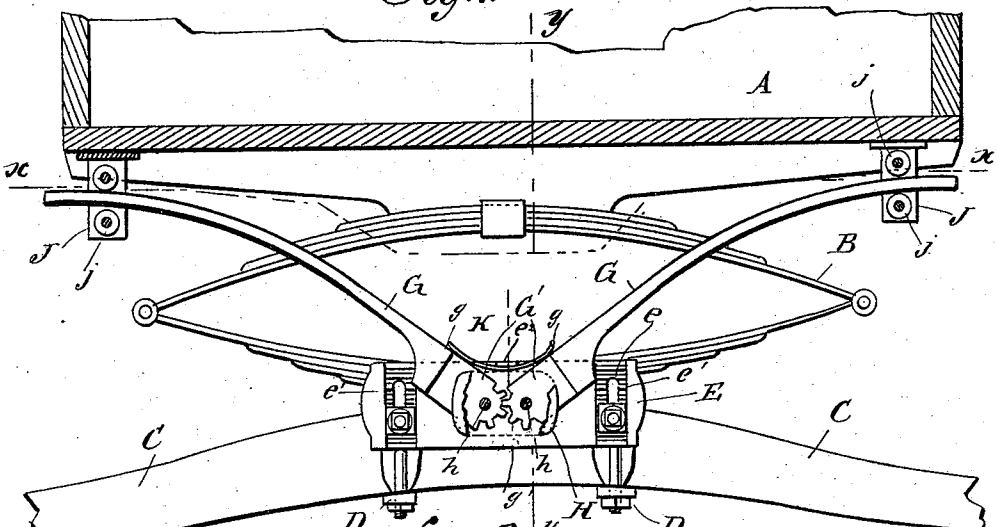


Fig: 2.

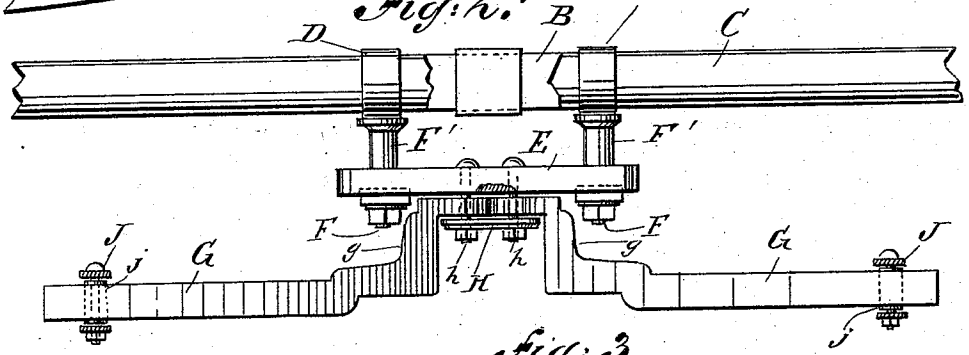


Fig: 3.

Fig: 4.

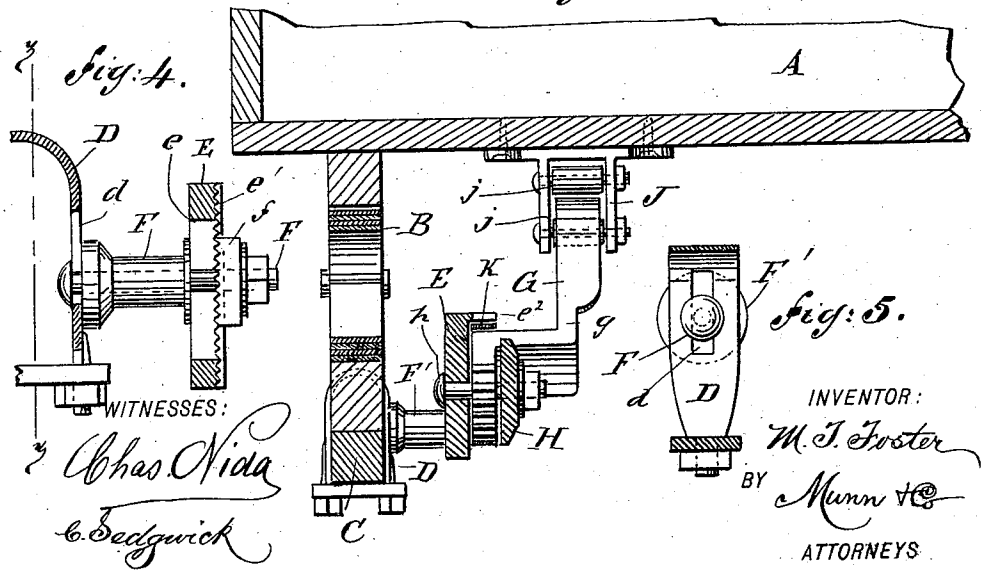


Fig: 5.

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MARSHAL T. FOSTER, OF PIEDMONT, KANSAS.

SPRING-EQUALIZER.

SPECIFICATION forming part of Letters Patent No. 456,406, dated July 21, 1891.

Application filed November 25, 1890. Serial No. 372,575. (No model.)

To all whom it may concern:

Be it known that I, MARSHAL T. FOSTER, of Piedmont, in the county of Greenwood and State of Kansas, have invented a new and Improved Spring-Equalizer, of which the following is a full, clear, and exact description.

The object of my invention is to provide means whereby the tilting of a vehicle may be prevented and the weight equally distributed so as to bear evenly upon the springs, thereby saving to a great extent wear and tear of the springs and also preventing the king-bolt from being twisted.

To this end my invention consists in a spring-equalizer constructed substantially as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a broken sectional view showing in elevation the equalizer embodying my invention, as attached to a buggy. Fig. 2 is a sectional plan on the line *x x* of Fig. 1. Fig. 3 is a broken vertical longitudinal section on the line *y y* of Fig. 1. Fig. 4 is an enlarged detail view showing the connection between an axle-clip and the back plate, to which the equalizer-arms are secured; and Fig. 5 is a vertical section on the line *z z* of Fig. 4, showing the means for adjusting the equalizer on the axle-clip.

The body A is mounted on springs B in the usual manner, and the springs are supported on the axle C in the ordinary way. The back plate E, which is a plain metal plate, is bolted to the axle-clips D, which are of the usual construction, except for the slots *d* therein, and are clasped upon the axle.

The plate E is attached to the clips D by means of the bolts F, one of which extends through each clip and the plate, and a sleeve or washer F′ is inserted between the clip and plate, so as to hold the plate the requisite distance from the clips, the object being to bring the equalizer-arms, which are bolted to the plate, well beneath the wagon-body. The clips have the vertical slots *d* to allow for the vertical adjustment of the bolts F, and the plates E have also vertical slots *e* to provide still further for vertical adjustment, the object in each case being to adapt the equalizer-arms to the vehicle with which they are connected. The plate E has on one side, next the slots *e*, a series of corrugations *e′*, and the bolt F carries a washer *f*, which has similar corrugations, so that when the bolt is tightened in place the washer will fit closely against the plate and the plate cannot be moved. The equalizer-arms G are pivoted at their lower widened ends G′ between the plate E and a smaller plate H, the plates H and E being connected by the bolts *h*, which also serve as pivots for the arms G. The arms G are bent laterally, as shown at *g*, to bring them well under the wagon-body, and the extremities of the widened ends G′ of the arms are made semicircular in shape and provided with interlocking cogs *g′*, so that when one bar is moved the other bar will be moved also. The arms G are curved upwardly, and their upper portions are made to extend between the rollers *j*, which are preferably of rubber and which are pivoted in brackets J, which are attached to the bottom of the wagon-body. The arms are held closely between the rollers, and any movement of the body will be transmitted to the arms.

On the center of the plate E, above the pivoted end of the arms G, is a lug e^2, and mounted on the lug is a spring K, the ends of which are curved downward, so as to press against the arms, and the pressure of the spring will thus take up any lost motion of the arms, which is produced by wear. The equalizer may be attached to any kind of a vehicle, and if the weight in the vehicle is mostly on one side the instant that said side is depressed it will depress one of the arms G, and this will turn the opposite arms in the manner described, which, acting on the rollers *j*, will also depress the opposite side of the vehicle-body, so that the vehicle-body will be perfectly level and even at all times, and an even pressure will thus be maintained upon the springs. This will prevent also the twisting and breaking of the king-bolt, by which the body is connected with the axle.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A spring-equalizer for vehicles, comprising a plate having parallel vertical slots, securing or attaching bolts extending through

said slots, and the two outward-extending arms pivoted at their inner ends to said plate between said slots and geared together, substantially as set forth.

2. A spring-equalizer for vehicles, comprising vertically-slotted axle-clips, the bolts extending therethrough and having sleeves or collars, the vertically-slotted plate through the slots of which the ends of the said bolts pass, adjusting-nuts on said bolts, and the geared arms pivoted to said plate, substantially as set forth.

3. A spring-equalizer for vehicles, comprising a vertically-adjustable plate secured to the vehicle-axle, and two diverging arms pivoted on the plate and having their inner ends geared together, said arms having their outer ends loosely connected with the vehicle-body, substantially as described.

4. A spring-equalizer for vehicles, consisting in the vertically-adjustable plate, having a projection *e* at its upper edge, the geared arms G, pivoted at *h h* to said plate, bent at *g* and thence curved outward, and the short spring K under the said projection and bearing on the inner ends of the said arms outside of their pivotal points, substantially as set forth.

5. The combination, with the vehicle body and axle, connected by springs in the usual way, of upwardly-curved arms pivoted on the axle and having their pivoted ends geared together, and depending brackets fixed to the wagon-body and provided with rollers to embrace the arms, substantially as described.

6. The combination, with the vehicle body and axle, connected by springs, as described, of a plate adjustably secured to the axle, two upwardly-curved arms pivoted on the plate and having their inner ends geared together, and depending brackets fixed to the vehicle-body and provided with rollers to embrace the arms, substantially as described.

7. A spring-equalizer for vehicles, comprising two plates adjustably secured to the vehicle-axle, two upwardly-curved arms pivoted between the plates and having their inner ends geared together, and depending brackets fixed to the vehicle-body and provided with rollers to embrace the arms, substantially as described.

8. In a spring-equalizer, the combination, with the axle-clip, and the plate secured to the clips, said plate having corrugations therein, as shown, of a bolt connecting the clips and plate, the washer mounted on the bolt between the two, and the corrugated washer mounted on the bolt and adapted to fit the corrugations of the plate, substantially as described.

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Witnesses:
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