

C. E. RENNEN & W. ROMEISER.
 SPRING SUSPENSION ARRANGEMENT FOR VEHICLES.
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971,475.

Patented Sept. 27, 1910.

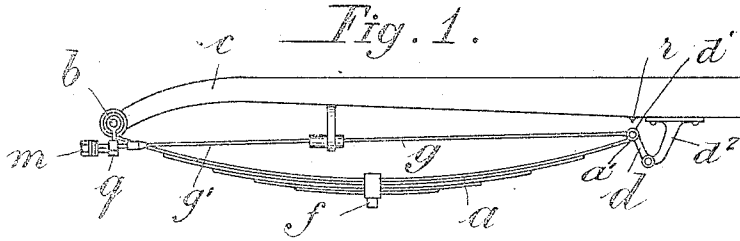


Fig. 3.

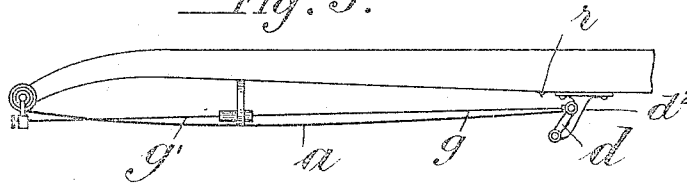


Fig. 2.

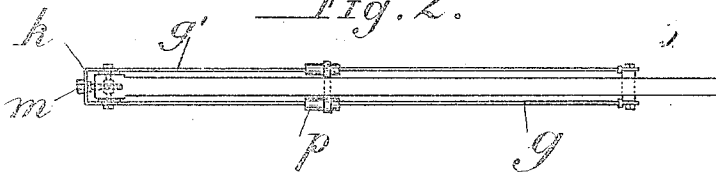
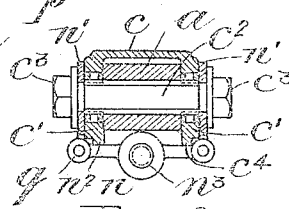
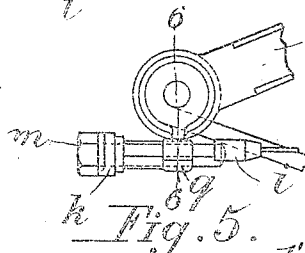
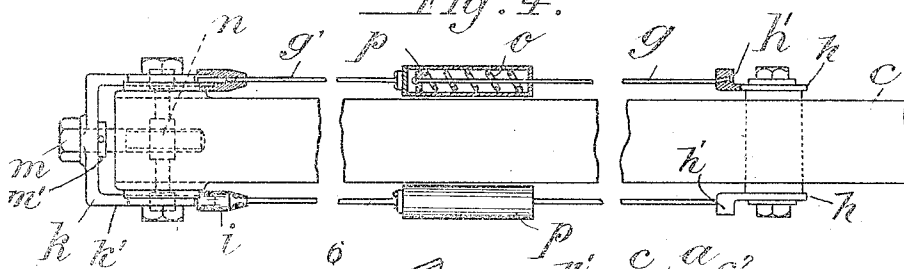


Fig. 4.



Witnesses:
 C. H. Crawford
 E. Schallinger

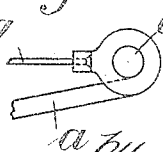


Fig. 7.
 Carl Edward Rennen
 Wilhelm Romeiser
 by B. Singer, Attorney

UNITED STATES PATENT OFFICE.

CARL EDUARD RENNEN, OF OBERHOMBURG, AND WILHELM ROMEISER, OF FRANKFORT-ON-THE-MAIN, GERMANY.

SPRING-SUSPENSION ARRANGEMENT FOR VEHICLES.

971,475.

Specification of Letters Patent.

Patented Sept. 27, 1910.

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To all whom it may concern:

Be it known that we, CARL EDUARD RENNEN, a subject of the German Emperor, and residing at Oberhomburg, Lothringen, Germany, and WILHELM ROMEISER, a subject of the German Emperor, and residing at 19 Bockenheimerlandstrasse, Frankfort-on-the-Main, Germany, have invented certain new and useful Improvements in Spring-Suspension Arrangements for Vehicles, of which the following is a specification.

This invention relates to spring suspension means for vehicles of that class in which the main spring is supplemented by an auxiliary adjustable spring device.

The objects and nature of the invention will be more fully described in connection with the accompanying drawing and will be more particularly pointed out in and by the appended claims.

In the drawing, Figure 1 is a view in side elevation of the improved spring suspension embodying the main features of our invention. Fig. 2 is a plan view thereof. Fig. 3 is a view similar to Fig. 1, with the main spring diagrammatically indicated, and the parts in the position assumed under tension of a load. Fig. 4 is a large plan view, shown in section, similar to Fig. 2. Fig. 5 is a detail side elevation of one end of the spring suspension; Fig. 6 is a sectional view on line 6-6 of Fig. 5 with parts in elevation. Fig. 7 is a detailed elevation of the other end of our improved spring suspension.

Like characters of reference designate similar parts throughout the different figures of the drawing.

A part of the frame of the vehicle is indicated at *c* and is provided with an indicating member *r* forwardly of its end, and is provided with flanges *c'* having openings to receive a bolt *c''*. The main suspension spring is indicated at *a* and is provided with the usual fastening *f* for anchorage thereof with the axle of the vehicle. (not shown). The main spring *a* is secured at *a'* by a bolt *d'* to a rocking lever or link *d*. The link or lever *d* is pivotally mounted on a bracket *d''* depending from the frame *c*. The opposite end of the spring *a* is secured about the bolt *c''*, between the flanges *c'*, as shown in Fig. 6.

A rigid U-shaped yoke *n* is provided with eyes or extensions *n'* which are supported from the bolt *c''*. The extensions or eyes *n'*

are clamped against the frame *c* by nuts *c''*, and suitable washers therefor. The lower portions *c''* of the frame *c* also engage the yoke *n* at *n''* to prevent movement of the yoke *n* about the bolt *c''*. The yoke *n* is provided with a centrally disposed threaded boss *n''* and with laterally disposed sleeves *q*.

A tightener preferably in the form of a yoke *k* is provided with ends *k'* slidably mounted in the sleeves *q*. A bolt *m* is mounted centrally in the tightener *k* and is provided with a washer *m'* for preventing longitudinal movement of the bolt *m* with respect to the tightener *k*. The threaded portion of the bolt *m* engages the threaded boss *n''* to provide adjustment of the tightener with respect to the yoke by which it is supported.

The bolt *d'* is provided with eyes *h* having lugs *h'* for anchorage of rods *g*, as clearly shown in Fig. 4. The ends *h'* of the tightener *k* carry nipples *i* to which the ends of rods *g'* are secured. The adjacent ends of the rods *g* and *g'* are yieldingly connected together and as shown the rods *g'* are provided with spring containers *p* into which the rods *g* extend. The rods *g* are provided with washers on their ends to engage springs *o* which are interposed between such washers and the opposite ends of the containers *p*, as clearly shown in Fig. 4.

The main spring *a* is designed and intended to sustain a load of a predetermined amount and the device of our invention is for the purpose of relieving the spring *a* when it has been flexed to the maximum extent, at which point its resiliency is completely taken up. The position of the parts under a normal load is indicated in Fig. 1, the upper end of the rocking lever or link *d* being adjacent the indicating part *r*. When the load is increased the ends of the wires *g* and *g'* are separated and the springs *o* are placed under tension for the purpose of relieving the spring *a*. Now it will be readily seen that if there is a light load the bolt *m* may be adjusted so that a slight tension of the spring *o* is utilized whereby a greater resiliency of support is provided. If the load is increased the bolt *m* may be adjusted to place the springs *o* under a greater initial tension or to in other words adjust the rods *g* and *g'* farther apart, thereby obtaining a stiffer spring action. It will thus be seen that the supplemental spring device can be

brought into action so as to place any desired load upon the main spring *a* before the auxiliary device acts and that when a predetermined amount of load is placed upon a spring *a* the latter will act in conjunction with the auxiliary spring device to support the load.

We claim:—

1. In a spring suspension for vehicles, the combination of the vehicle frame, a main spring therefor, a bolt connecting one end of the main spring with the frame, a link connected with the frame and united with the other end of the spring, an auxiliary spring connected with the link, a yoke depending from said bolt, and an adjustable tightener slidably mounted in said yoke and connected with said auxiliary spring.
2. In a spring suspension for vehicles, the

combination of the vehicle frame, a main spring therefor, a bolt connecting one end of the spring with the frame, a link connected with the frame and united with the other end of the spring, an auxiliary spring device connected with said link, a yoke supported by said bolt, a tightener yoke slidably mounted in said first named yoke and connected with the auxiliary spring device, and an adjusting element for moving one yoke with respect to the other to adjust said auxiliary spring device.

In witness whereof we have hereunto set our hands in presence of two witnesses.

CARL EDUARD RENNEN.
WILHELM ROMEISER.

Witnesses:

BERNHARD RAISIR,
JEAN GRUND.